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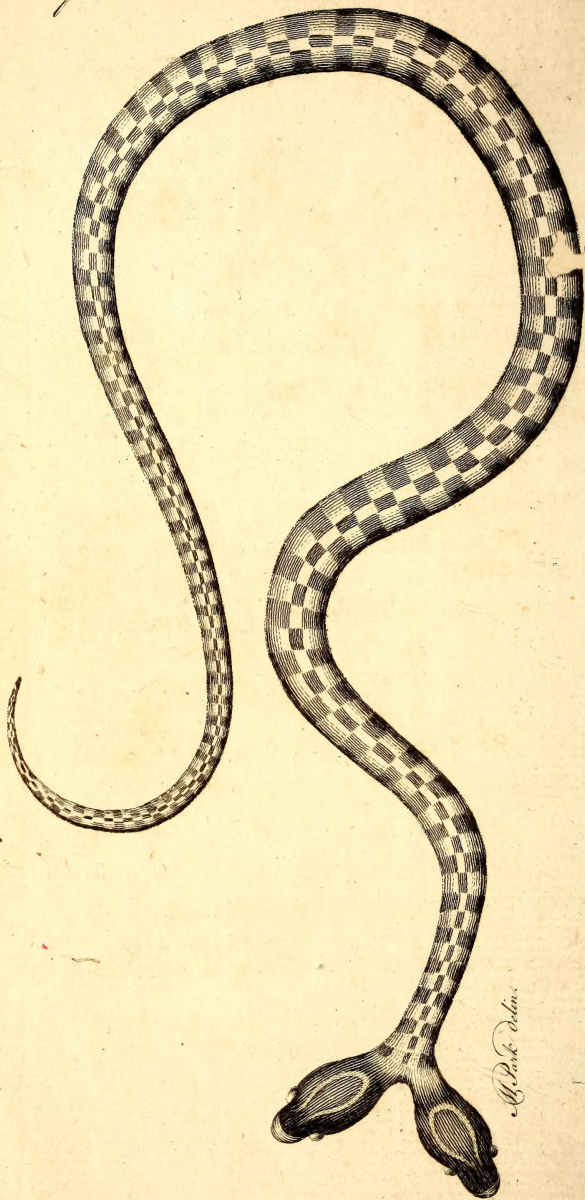
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Amphisbæna, or Double-headed Snake.

Frontispiece.



W. Park del.

*This Snake was found near Lake Champlain in America, in the Year 1761.
by Lieut. Moses Park See Page 214.*

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AN
ESSAY
ON THE
NATURAL HISTORY
OF
GUIANA,
In SOUTH AMERICA.

CONTAINING

A Description of many Curious PRODUCTIONS
in the ANIMAL and VEGETABLE SYSTEMS
of that Country.

Together with an Account of
The RELIGION, MANNERS, and CUSTOMS
of several Tribes of its *Indian* Inhabitants.

Intersperfed with
A Variety of Literary and Medical OBSERVATIONS.
In SEVERAL LETTERS

FROM
A GENTLEMAN of the MEDICAL FACULTY,
During his Residence in that Country.

— Ad res pulcherrimas ex tenebris ad lucem erutas alieno
labore deducimur.

SENECA, *De brevitate vitæ*, cap. xiv.

L O N D O N,

Printed for T. BECKET and P. A. DE HONDT
in the Strand. MDCCLXIX.

Bancroft C.



ESSAYS
ON THE
NATURAL HISTORY
OF
GUIANA
IN SOUTH AMERICA

A Description of the Guianan Flora, Fauna, and Minerals, with a History of the Country.

By Wm. Smith, Esq. of the Middle Temple, Barrister at Law.
The History of the Guianan Flora, Fauna, and Minerals, with a History of the Country, is a work of great value, and one which will be found interesting to all who are concerned with the Natural History of the Country.

Printed by Wm. Smith, Esq. of the Middle Temple, Barrister at Law.
During his Residence in the Country.

London: Printed by Wm. Smith, Esq. of the Middle Temple, Barrister at Law.
Dedicated to the Hon. the Secretary of State.

Second Edition, 1790.

Price 10s. 6d.

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1769
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EXHIB

T O

WILLIAM PITCAIRN, M. D.

**FELLOW of the Royal COLLEGE of
PHYSICIANS in LONDON,**

A N D

**PHYSICIAN of ST. BARTHOLOMEW'S
HOSPITAL,**

This E S S A Y

Is Inscribed,

With Respect and Gratitude,

By his most humble,

and most devoted Seryant,



EDWARD BANCROFT,

T O

WILLIAM PITCHER, M.D.

Baron of the Royal College of
Physicians in London

AND

Professor of the History of
Medicine

THIS IS A

Small

With Notes and Comments

of the Author

London

Printed by

Advertisement.

THE Author of this Essay had determined to conceal his Name from the Public; but since the LETTERS and Title Page were printed, his Friends have represented the impropriety of publishing an Account of the unknown Productions of an almost unknown Country, on the slender support of anonymous Authority; and the justice of their remonstrance overcoming his juvenile timidity, has encouraged him to subscribe his Name to the Dedication; not with a presumptuous expectation of acquiring Honour from the Work, but solely to add to its Credibility.

These

ii ADVERTISEMENT.

These LETTERS originally contained only the more curious Particulars in the Animal and Vegetable Systems of *Guiana*, and many things have been since added, from the Writer's Memoirs, which were made without design of publication, and in several instances do not descend to such minute objects as he could have wished; and he is too sensible of the imperfections of memory to add much on that authority.

The Order which has been observed in these Descriptions, though somewhat unusual, appears most natural, and is exposed to fewest inconveniencies. Had the Author first described the Manners and Customs of the Inhabitants, it would have been necessary to suppose many things known, with which the Reader could not be acquainted, and
confe-

ADVERTISEMENT. iii

consequently the Descriptions, in many particulars, must have been unintelligible, or the Writer must have recurred to frequent repetitions, which are now avoided.

It is necessary to inform the Reader, that the Author's Observations on this Subject, have been confined within the limits of the *Dutch* territories in *Guiana*; those of *Spain* being inaccessible to Foreigners, with whom all intercourse is prohibited: nor is the communication with the *French* and *Portuguese* Colonies, on this Coast, much less embarrassed. So imperfect has our knowledge of this Country hitherto been, that the latest Compilers of Modern History have not been able to determine whether its native *Indians* lived in congregated multitudes, inhabiting splendid opulent cities; or whether, as is the case,

iv ADVERTISEMENT.

case, they were dispersed in families over the whole country, agreeable to the natural and primitive simplicity of mankind.

Guiana, on account of the diversity and fertility of its soil, together with its vicinity to the *Æquator*, affords almost all the productions of the different *American* Countries between the Tropics, whether insular or continental, besides a variety of curious objects peculiar to itself; from all which the Author flatters himself, that this Essay will not be unacceptable to the Public.

A N
E S S A Y
O N T H E
N A T U R A L H I S T O R Y
O F
G U I A N A.

Rio Demerary, July 8, 1766.

Dear BROTHER,

IN compliance with your reiterated desires, and my repeated promise, I propose in this, and several subsequent Letters, to give you an Essay on the Natural History of
B G U I A N A ;

GUIANA; a country, which, except its sea coast, and the lands adjacent to its rivers, remains hitherto unexplored, by the subjects of any *European* State, and unknown to all, but its aboriginal Natives. Yet if we may be allowed to form an idea of things undiscovered, by the immense variety, uncommon mechanism, and properties, of its Animal and Vegetable Productions, which have spontaneously presented themselves within the confined limits, to which our indolent enquirers have extended their observations, we may justly conclude, that the blessings of Nature, have in no part of our habitable system, been dispensed with a more liberal hand, and that no part of this Terrestrial Globe, affords more abundant cause, to admire and adore, the stupendous Power, Wisdom, and Beneficence of its Creator.

DSI

I must

I must, however, previously tell you, that you have engaged me, to assume a task, to which I am conscious, that my slender abilities, are very unequal, and which I am particularly unable to execute with advantage, from the little acquaintance I have had with the study of Botany, and my entire ignorance of the art of Drawing, which would have enabled me, agreeably to illustrate my verbal descriptions. I am likewise but little acquainted with the *Indian* languages, which are indispensably necessary, for acquiring that knowledge of the properties, and effects of the several classes of Animals, and Vegetables, which experience, during a long succession of ages, must have suggested to these natives. I have, in vain, endeavoured to overcome this difficulty, by the assistance of an Interpreter.

An intercourse, supported through such an imperfect medium, must ever be confined, precarious, and disagreeable. Add to this, in my present situation, I am almost entirely destitute of books, by which I might correct my errors, and elucidate my ideas, and consequently debarred, from imitating the practice of authors, who pretty generally pursue the advice of *Seneca* *, with advantage. Perhaps, however, this deprivation, may not be very considerable, since little has been wrote on this subject, which can deserve attention.

* Nos quoque has Apes (qui flores ad mel faciendum idoneos carpunt et qui collegerunt, in hunc saporem mixtura quadam, et proprietate spiritus sui mutant) debemus imitari; et quæcunque ex diversa lectione congeffimus, separare: Deinde adhibita ingenii nostri cura, et facultate, in unum saporem, varia illa libamenta confundere: ut etiam si apparuerit unde sumptum sit, aliud tamen esse, quam unde sumptum est, appareat. *Epist.* 84.

Yet

Yet notwithstanding these difficulties, I have resolved to prosecute my undertaking, not only in compliance with your desires, to which I shall ever pay the most affectionate attention, but from considering, that though this country, has been discovered for more than two centuries and an half, and has, at different periods, since its discovery, been inhabited by the subjects of many *European* Powers, yet it still continues almost wholly unknown in *Europe*; no description of it worthy of notice having ever been published; and indeed, if we resolve to wait until the subject is assumed by a capacity adequate to its extent and importance, we shall probably continue in our present ignorance a much longer term; as few, who visit these countries, are qualified for the undertaking, and all are more attentive to the acqui-

sition of wealth, than natural knowledge.

GUIANA was first discovered by *Christopher Columbus*, in the year 1498. It is situated between the seventh degree of north, and the fifth degree of south latitude, and between the fifty-third, and sixtieth degrees of longitude west from *London*. It is bounded on the north and east by the *Atlantic Ocean*, on the west by the great river of *Oronoque*, on the south by the river of the *Amazons*, and on the south west by the river *Negro*. The communication of this river with the two former, which was originally believed, and afterwards universally denied, on strength of mere conjecture, is now sufficiently demonstrated; and *Guiana*, which by the river of the *Amazons*, is divided from *Brasil*, by the river *Oronoque*, from *Terra Firma*,

Firma, and by the *Negro*, from the kingdom of *Peru*, is by this communication converted into an island, the largest which has been hitherto discovered.

The sea-coast from the mouth of the river *Oronoque* to that of the *Amazons*, is near three hundred leagues in length, running from *Cape Barimer* near the *Oronoque*, to the river *Demerary*, which is upwards of twenty leagues, in a course nearly east south east; and from thence to *Cape Orange*, near the river *Oyapock*, with some variation south east by east; from thence to the island of *Maraca*, and the *North Cape*, it shapes nearly south by east half east, continuing from thence to the river of *Amazons*, in a course nearly south.

Several revolutions have happened in the property of *Guiana*, since its discovery ; but it is now divided between the *Spaniards*, *Dutch*, *French*, and *Portuguese* ; the *Spaniards*, however, have no other possessions in this country, except their settlements, on the eastern side of the river *Oronoque*, near the confines of its limits, and therefore, can hardly be included, among the proprietors of *Guiana*.

The *Dutch* territory is bounded by the *Spanish* settlements on the west, and by the river *Maroni* on the east. Within these limits are the following large navigable rivers, discharging themselves into the *Atlantic Ocean*, viz. *Pomaroon*, *Essequibo*, *Demerary*, *Berbice*, *Curran-tine*, *Surinam*, and *Merriwina*, situated from west to east in the order in which they

they are mentioned. A more particular description of these rivers, with their settlements, will be the subject of a future Letter.

The *French* territory includes the river *Maroni*, which is the boundary to the *Dutch* possessions on the west, and extends to the territory on the north side of the river of the *Amazons*, near *Cape Orange*, which a few years since was ceded by *France* to the dominion of *Portugal*. Within these limits are the rivers *Maroni*, *Sinamary*, *Kourou*, *Amunibo*, *Organa*, *Cannanama*, and *Maccouria*.

DUTCH GUIANA was formerly the property of the Crown of *England*, and the *English* had made settlements at *Surinam*, where at this time a species of corrupt *English* is universally spoken
by

by the Negroes ; but of these settlements, the *Dutch* made themselves masters, in the reign of *Charles the Second*, to retaliate the conquest of *New Holland* ; and by a subsequent treaty, in *February*, 1674, they obtained a cession of all the *English* territories in *Guiana*, in exchange for what they had possessed in the province now called *New York*.

The land in *Dutch Guiana*, for the distance of near fifty miles from the sea, is every where flat and level, without a single hill ; and so low, that during the rainy seasons, it is usually covered with water near two feet in height. This, however, has produced an effect similar to that of the prolific inundations of the *Nile*, and rendered the soil more fertile than that of any other part of the globe ; insomuch, that the soil on the surface
of

of the earth, for twelve inches in depth, is a stratum of perfect manure, and as such, has been transported to the island of *Barbadoes*; but the wood-ants, which are here very numerous, committed such ravages in the vessel, that a repetition of that project has not been attempted.

But to convey an adequate idea of the soil of which I am writing, I need only tell you, that in *Essequibo*, it has produced thirty crops of ratoon canes, successively, without replanting; whereas, in the *West India* islands, more than two is never expected. I have instanced *Essequibo*, not because its soil is more fertile than that of this river, or *Berbice*, but because no settlements have been made on the lower parts of these rivers, until very lately, the *Dutch* having before cultivated the
more

more elevated, but less valuable lands, farther up these rivers, while that adjacent to the sea, was by them neglected, on account of those superundations, which are the source of this redundant fertility; which is even somewhat disadvantageous, and proves, that even the greatest blessings, may be dispensed to excess; as the inhabitants near the sea, are under the necessity, of recurring to various expedients, for diminishing the excessive fertility of the soil, which they usually effect, by stocking it with plantin trees, for two or three years, and afterwards planting it with canes, which even, after this precaution, are usually too robust, and luxuriant to make sugar with advantage, and are therefore, during the first and second crop, converted into rum, which, until the late Act of the *British* Parliament, for prohibiting the entry of foreign rum into her *Ameri-*

can

can Colonies, was usually sold to *New-England* traders, in payment for their commodities, but has since been sent to the coast of *Africa*, for the purchase of slaves.

The timber, with which the land adjacent to the sea is covered, is chiefly small and low, consisting mostly of *Manicoles*, which are a small species of Palm, and *Troelies*, which are a leaf near thirty feet in length, serving for the thatch of houses ; these, however, at the edges of current water, are intermixed with large *Mangroves*, which I shall hereafter describe.

The soil in the inland elevated part of the country, though fertile, is less durable : It is, however, cloathed with lofty ever verdant forests, affording the most valuable species of timber, either
for

for solidity, weight, duration, or ornament. In this part of the country, there are several ridges of sandy hills, but no elevations, that can deserve the name of mountains, between the sea-coast of the *Dutch* part of *Guiana*, and the river of the *Amazons*; a *Dutch* Surgeon, more than twenty years since, having obtained from the Governor of *Essequibo*, several *Indians*, to conduct him into the interior part of the country, in quest of new discoveries, with whom he ascended the river of *Essequibo*, three hundred miles from the sea, near its source, and from thence transporting his canoe by creeks and rivulets, and when these were wanting, by land, he at length fell in with a branch of the river *Blanco*, by which he descended into the *Negro*, and from thence to the river of the *Amazons*, without discovering any considerable mountain, in all
this

this course. Here the *Indians* left him, and returned, as he thought proper to fix his residence among the *Portuguese*. This is probably the same person, that *Monfieur de la Condamine* saw, in descending the river of the *Amazons* in 1743, whom he names *Nicolas Hortfman*, and says he mounted the river of *Essequibo*, in 1740, in quest of the *Golden Lake of Parima*.

But though the *Dutch* territories are destitute of mountains, those of *France* are not, as there is a considerable ridge of them, about thirty miles from the sea, on the continent opposite the island of *Cayenne*, and a still larger ridge near three hundred miles farther within the country, extending from east to west, according to the reports of the *Indians*, for they were never visited except by the aboriginal Natives.

Besides

Besides the large rivers which I have enumerated, there are an innumerable number of large and small creeks, many of which are navigable for vessels of some burthen for many leagues; and but few countries can boast of superior advantages in navigation.

Notwithstanding the proximity of *Guiana* to the Equator, there is no country between the Tropics which enjoys a more regular and uniform, temperature of climate. The constant regularity of the trade winds during the day, and of the land breezes, which succeed in the evening, joined to the quick return, and invariable length of the nights, with their refreshing dews, render the heat so far from being excessive, that it is seldom disagreeable, especially to the white inhabitants,
 who,

who, except a very few, are unexposed to the rays of the sun near mid-day. And surprizing as it may appear, I can nevertheless assure you, that the heat is here less than in the island of *Barbadoes*, which is esteemed the most temperate and salubrious of all the tropical islands. Here we are not subject to those particular seasons for crops and harvest, to which the inhabitants of all the *West-India* islands are confined; every part of the year being proper both for planting and gathering, and in every part of the year blossoms, together with ripe and unripe fruit, appear on the same trees. Revolving years afford nothing but a perpetual uninterrupted summer.

“ Stern winter smiles on that auspicious clime,
 “ The fields are florid with unfading prime;
 “ From the bleak Pole no winds inclement blow,
 “ Mould the round hail, or flake the fleecy snow.”

POPE.

C

The

The only division of seasons in *Guiana* is into rainy and dry; of each of these there are annually two, of about three months duration each. The rainy seasons depend on the approaches of the Sun, towards the Tropics of *Cancer* and *Capricorn*. In the month of *May*, when that luminary arrives within ten or twelve degrees from the Tropic of *Cancer*, the showers begin, and gradually increase, both in frequency and the term of their duration, until the month of *June*, when the rains become incessant, accompanied with violent and frequent thunder, and thus continue until the beginning of *July*, when they gradually decrease with the Sun's retrograde motion towards the Equator, and by the beginning of *August* intirely cease. The same gradation is observed as the Sun approaches the Tropic of *Capricorn*; but as we, in this part of *Guiana*, are
situated

situated at a greater distance from that, than from the Tropic of *Cancer*, so the rains at that season are here less violent, and of shorter duration; besides, they are unaccompanied with thunder, which, from whatever cause it may happen, is never heard here during those months which constitute winter in *Europe*.

The term of each dry season is during six or seven weeks before, and as many after, the vernal and autumnal equinoxes. During the continuance of these seasons, there is seldom a drop of rain; the air is clear and serene, and plentiful dews supply the absence of rain. These seasons, however, are much more unhealthy than the rainy, because the water, which inundates all the uncultivated land adjacent to the sea coast, during the wet season, and which then preserves an incessant fluctuation,

stagnates and corrupts during those months in which the rains intermit, by which the atmosphere becomes replete with noxious particles, frequently generating putrid fevers. But of these, and the other diseases of the country, I shall be more particular hereafter.

Having premised this general account of the situation, extent, division, soil, and climate of *Guiana*, I shall next proceed to acquaint you with its vegetable and animal productions, in a simple, but, I hope, intelligible language, avoiding all embellishments of style, which, in subjects of this nature, are incompatible with perspicuity; nor can I ever pursue the following advice of *Seneca* to *Lucilius*, with more propriety than on the present occasion :

“ Nimis

“ Nimis anxium te esse circa verba
 “ et compositionem, mi Lucili, nolo :
 “ Habeo majoraque curas, quere quid
 “ scribas non quem admodum ——
 “ Cujuscunque orationem videris solli-
 “ citam et politam scito animum quo-
 “ que non minus pusilius occupatum.”
Epist. 115.

Concerning Fossils and Minerals, I
 shall only observe, that above the Ca-
 taracts of the river *Demerary*, there
 are abundance of red and white Agates,
 which remain untouched by the Na-
 tives, who avoid them from a princi-
 ple of superstitious veneration, as they
 are dedicated to the service of their
 magical invocations. There are like-
 wise a variety of stones, which appear
 to contain valuable ores, and there are
 undoubtedly mines of gold and silver,
 since the *Spaniards* have discovered

several in the interior part of the country, adjacent to the river *Oronoque*. It is here, that the imaginary lake of *Parima*, whose sands were of gold, and the fabulous golden city of *Manoa del Dorado*, whose walls were covered with that idolized metal, were situated; and until very lately, the nations of *Europe* have entertained extravagant ideas of the treasure of *Guiana*; nor is it probable, that they were altogether chimerical. But the genius and policy of the *Dutch*, are wholly commercial. They are sensible the wealth of *America*, has impoverished and depopulated the once powerful Monarchy of *Spain*; and have, therefore, wisely prohibited the working of mines within their territories in *Guiana*.

In ranging the Vegetable System of *Guiana*, I shall first consider those productions

tions which more immediately require the aid of cultivation ; in describing several of this class, I shall be able to derive some assistance from Mr. *Hughes's Natural History of Barbadoes* ; though an adherence to truth, and my own observations, will, in several particulars, oblige me to dissent from him ; probably, because the difference of soil and climate has occasioned a real difference in some of the productions of *Barbadoes* and *Demerary*, though of the same species. I have premised this, to avoid the trouble of unnecessary quotations ; and, because as *Pliny* justly says, “ Est benignum et plenum ingenui pudoris fateri
 “ per quos proficeris.” *Præfat.*

From those productions which are more immediately assisted by cultivation, I shall descend into the surrounding forests, where Nature sports in pri-

mæval rudeness; and, from the immense variety, which she has there spontaneously produced in the vegetable kingdom, I shall select such, as from the uncommon properties they have manifested, are more particularly worthy of publick attention; and, in the remainder of this, and my succeeding Letters, shall study, if possible, to avoid prolixity. “Non multis opus est
 “sed efficacibus, facilius intrant sed et
 “hærent.” *Seneca, Epist. 38.*

The Cocoa Tree, to which I have a particular attachment, I shall first describe. Its trunk is about six inches in diameter, and covered with a greenish white coloured bark; it is intirely destitute of branches, until it arrives eight or nine feet in height; when it reaches to twelve or fourteen feet, it is usually topped, to prevent its farther growth.

growth. Its leaves are about nine inches in length, and three in breadth, pennated, of a light green colour on the upper side, and of a deep green on the lower, where they are ribbed; these are disposed in alternate order. From the trunk chiefly, and the lower branches near the trunk, arise the flower, consisting of six petals of a pale flesh colour, variegated with reddish spots: to these succeed the pods, channelled into longitudinal grooves, and in size and shape nearly resembling a melon, but pointed at the end; these, when nearly ripe, change to a yellow colour. The pods are divided into several longitudinal cavities, in which the nuts, of an oblong roundish form, and about the size of an olive, are disposed in rows. These trees are usually planted in lines, at twelve, or fourteen feet distance, which form very agreeable

able shady walks, nor can any thing surpass the uniform beauty of a regular Cocoa Plantation. These trees grow wild, to a great height, in the interior parts of *Guiana*, adjacent to the rivers *Oronoque* and *Amazons*.

The Coffee Tree is seldom suffered to exceed six feet in height. The main stem, or trunk, is covered with a brownish grey coloured bark, and puts forth numerous branches close to the earth, which diverge on every side in a horizontal direction. These branches are about eighteen inches in length near the earth, from whence they gradually become shorter, as they approach to the top. The branches are covered with numerous beautiful green leaves, about three inches in length, and one and an half in breadth, being sharp pointed, and elegantly sinuated at the edges.

edges. The trunk and its branches, thus cloathed in their leaves, by which they are intirely obscured, appear in the form of a regular green cone, six feet in height, and near the earth about nine in circumference. Numerous flowers, of a beautiful white colour, adhere both to the trunk and its branches. They consist of five round pointed petals, which surround several short staminæ, supporting numerous apices; from within these arises the pistil, which contains the embryo of the succeeding berry. This consists of two kernels, which, by the junction of their flat sides, form a round oval berry. These kernels are inclosed in a husk, which changes from a green to a bright crimson colour, when the kernels are arrived to maturity. Of these there are annually two crops, and in this Colony, each of these crops, from a
good

good tree, is computed at a pound and an half. The trees are planted in straight lines, at five feet distance from each other; and a well ordered Coffee Plantation may be justly said to form a very agreeable prospect.

The Cotton Trees are of several species, but have all a near resemblance to each other. They consist of several small shrubs arising from one common root, and growing to about eight feet in height. The leaves of each species, though they differ in size, are indented. The flowers consist of five large yellow petals. Their pistils are covered on the top with farina fœcundans, of a yellow colour, which when mature falls into, and impregnates the subjacent matrix. When the petals fall off, a capsular pod arises, surrounded by three triangular leaves. The pod is somewhat conic,
and

and divided into several bells, each containing a lock of cotton, intermixed with small blackish seeds. These trees bear after nine months growth, and produce two crops annually, each crop amounting to near a pound. The crops of cotton, however, in this country, are somewhat precarious, and are frequently damaged by the early commencement and long duration of the rainy seasons.

The Sugar Cane has been so often described, that I shall pass it over in silence.

The Plantin Tree is natural to *America* as well as *Ethiopia*, having been immemorially cultivated by the *Indians* on every part of the Continent between the Tropics. The trunk arises from several white bulbous roots, and is about
eight

eight inches in diameter, tapering up to its height, which is about twelve feet from the earth. Its internal herbaceous stamen is enwrapped by about fifteen green, porous, vascular husks, near three lines in thickness. These, when they arrive at the top, (which several of them do not) diverge alternately, and form tapering footstalks; and each of these becomes the middle rib to the succeeding leaf, which is smooth, and of a sea-green colour, near five feet in length, two in breadth, and of a long oval shape. Its fibres run in a lateral direction, to the rib, and are easily separated. This rib, on the under side, is protuberant and convex; on the upper it is concave, and its concavity conveys the rain from the leaves to the trunk, for its nourishment. These leaves are usually about ten in number. Eight months after the tree has been growing,

growing, there arises from its summit a tough ligneous cylindrical stalk, about four inches in circumference, and near three feet in length, bending somewhat downwards, and terminated by a conic, reddish purple spatha, which adheres until the tree is cut down. This stalk is surrounded by numerous, monopetalous hermaphrodite flowers, disposed in annular circles, at about three inches distance from each other. From these arise small styles, terminated by a head, or corona, which afterwards become the Plantins. These Plantins are white farinaceous fruit, about eight inches in length, and three and an half in circumference, bending somewhat semi-circularly, and inclosed in a smooth, angular, husky tegument, which changes, when the fruit is ripe, from a deep green to a yellow colour. The Plantins, when full grown, but unripe, supply

ply the place of bread, being either roasted or boiled. When ripe, they are a soft, sweet, yellow pulp, and are eaten by way of desert, either raw, fried, or roasted in the husk. About fifty of these grow in clusters on one stem, and form what is called a bunch. To gather the bunch, of which only one is produced on a tree, the tree is first cut down; but its place is incessantly supplied by the young shoots, of which two or three are always ready at its root. There is another species of larger Plantins growing on a similar tree, but they are less delicate.

The Banana Tree differs but little from the Plantin. The fruit, however, is oval, being about four inches in length, and near five in circumference. It is never eat until fully ripe, when it is fragrant, agreeably sweet, and delicate.

The

The Cocoa Nut Tree is a species of Palm, and has been described as producing not only food and raiment, but almost all the necessaries of life. The trunk arises from a large cluster of small fibrous roots, and grows about fifty feet in height, undivided by branches until very near its top. Its position is seldom erect, and its magnitude often less at the middle than at either end. Its bark, from the ground to the height where the branches commence, is of an ash colour, and from thence it becomes green. The branches are between twenty and thirty in number, and about fifteen feet in length. Their footstalks, as they arise from the trunk, are inclosed in a strong reticular web-like plexus, which is the cloathing this tree has been said to afford. On two opposite sides of the branches are dis-

D posed

posed numerous narrow pennated leaves, about eighteen inches long near the trunk, from whence they gradually diminish in length. The external substance of the tree is strong, hard, and ligneous; its internal, like that of all the Palm kind, is pithy. The trees usually produce nuts in about six years, from the time of planting: several of these adhere to one stalk, which arises from the trunk near the place where the branches diverge. The colour of its flowers is of a yellowish white. The nut is too generally known to need a description.

The *Ricinus Americanus major*, or Physick Nut Tree, is a nuciferous, slender, knotty shrub, about twelve or fourteen feet in height; its leaves, which arise at the extremities of the branches, are round, and slightly indented. The

kernel of the nut, which resembles an almond, and has an agreeable taste, is inclosed in a green husky tegument. This kernel is separated in the middle by two thin white membranous follicles, or leaves, which are generally said to contain the purgative and emetic quality of the nut; though this is by some denied; however, I believe it from my own experience, having frequently eaten the nut when divested of these leaves, without any sensible effect.

The *Ricinus*, *Palma Christi*, or Castor Bush, is divided into two kinds, red or white. The former is distinguished by a reddish, and the other by a greenish stalk, which is about five feet in height, and jointed. Both the stalk and branches are covered with numerous leaves, near twenty inches in circumference, and forming eight or ten sharp

D 2 pointed

pointed divisions. The leaves are supported by foot-stalks near a foot in length. The flowers surround the summit of the main stem, and consist of small yellowish stamina, tipped with apices. The husk, which incloses the berry, is at first green, but, as it ripens, changes to a brown colour, and falls off. The nut is of a triangular form, composed of three parts, and slightly covered with a brownish fur. These are replete with an oil, which, when obtained by expression, can scarcely be distinguished from that of the olive. It is gently purgative, and is now esteemed a specific for the *Colica Pictorum*, or *West India Dry Gripes*.

The Manchineel Tree is supported by a trunk about two feet diameter, which soon divides into many branches, like an Apple Tree. These are covered
with

with small round leaves. The wood is beautiful, solid, and permanent. The fruit in figure and fragrance resembles the *English* Crab Apple. Within its pulp is a hard, fulcated, uneven kernel, containing the seeds of the apple. The milky juice contained in the bark of the tree, upon touching the skin immediately raises watery vesicles; and both that and the pulp of the fruit being taken internally, occasion inflammations and death. Seawater, however, with the juice of limes, and of the fig, and Whitewood Tree, are effectual remedies.

The Guava Tree is about twenty feet high, soon dividing into several branches. Its bark is smooth and grey. Its leaves are of a deep green, rough, and pointed, being about three inches in length, and one in breadth. The flowers are

D 3 white,

white, and pentapetalous. The fruit is globular, and of a deep green colour, until it is ripe, when it changes to a yellowish white. The end, opposite to the stem, has a small corona; within the rind, is a thin apple-like substance, inclosing a reddish pleasant pulp, intermixed with numerous small hard seeds. This fruit is the usual succedaneum to Apples; and its external substance is used for tarts, marmalades, &c. The inner pulp affords an excellent jelly. The whole of the fruit is astringent. There is another species, formed like a Pear, but they are less common.

The Avigato Pear Tree is between thirty and forty feet in height. Its trunk separates into widely diverging branches, covered with large pointed leaves. The flowers arise at the extremities of the branches, and are hexapetalous. To these

these succeed the fruit, which resembles, when ripe, a large Pear, and is either red, purple, or of a light green colour. The pulp, within the rind, is of a soft delicate texture, and has justly been stiled a vegetable marrow, being the most nutritious, salubrious, and agreeable, of all the tropical fruits. It is usually eaten with salt and pepper. Within the pulp is contained a russet coloured stone, from which the tree is produced.

The Cassava Shrub is about four feet in height, knotted, and covered with an ash coloured bark. Within it is pithy. Near the top, it divides into several short, small, green branches; from these arise reddish footstalks, about six inches in length, supporting large digitated leaves. The root is white, soft, and farinaceous, of a cylindrical form,

near a foot in length, and five or six inches in circumference. This root is grated on large copper graters, into coarse meal, from which its juice is separated by expression. This meal is then put on large plates of iron, placed over a slow fire, and is formed into circular cakes of different magnitude, and from one to four lines in thickness; on these plates it is baked, until the surface becomes brown, and will then keep sweet, and wholesome, for many months. But notwithstanding this is the usual bread every where on this Coast, yet every part of the root from which it is made, is a speedy and fatal poison, of the cold kind, causing, when internally taken, violent spasms, a tumefaction of the abdomen, and a speedy cessation of all the vital functions. The aqueous part is expressed, not because it is more poisonous than the farinaceous substance, but

but to facilitate the baking. By the inattention of the Slaves, this juice, when expressed, is frequently drank by the sheep, hogs, and poultry, on the Plantations, which ever proves fatal to them : yet the animals thus poisoned, are always eaten by the inhabitants. Yet this poison, fatal as it is in its crude state, is rendered perfectly innocent and wholesome by fire. Thus the meal, by baking, is rendered innoxious and nutritious ; and the poisonous juice of the root, when expressed, is, by the *Indians* and White Inhabitants, boiled with venison, pepper, &c. and thus affords an agreeable salubrious soup. The best antidotes that have hitherto been discovered against the poisonous effects of the Cassava, in its crude state, are red pepper and rum, taken immediately. The Sweet Cassava differs from this only by being innocent, and having

ing a tough ligneous fibre running longitudinally through the root.

The Female Poppau is of the Pruniferous tribe. Its trunk is hollow, and usually grows to about fifteen feet in height, and six or eight inches in diameter ; being wholly destitute of branches. It is covered with bark of a light brown colour, variegated by the vestigia of the fallen off stamina of the leaves. The leaves on one tree are usually about fifteen in number, and near four feet in circumference, divided into seven or eight sections, which are again irregularly subdivided into others, which terminate in obtuse points. These leaves are supported by as many hollow herbaceous foot-stalks, near two feet in length, which arise in a cluster from the summit of the trunk, from whence the pedicles to the flowers arise.

arise. These pedicles are short, and covered with clusters of pentapetalous flowers, of a yellowish white colour, which are fragrant, and used for Sweet Meats and Confections. The Poppau fruit, when young and small, make excellent pickles. They are of an oval form, about six inches in length when ripe; at which time they change from a green to a yellow colour. Their external substance resembles that of a Pumpkin; and is boiled and eaten, when the fruit is near ripe; the milky caustic juice which it contains being first suffered to exude. Within the external substance is a cavity filled with a soft pulp, intermixed with numerous small seeds.—The Male Poppau differs from the Female in two particulars. It produces no fruit; and the pedicles, to which its flowers adhere, are near three feet in length.

The

The Pigeon, or Angola Pea Tree, is a branching shrub, about nine feet in height, covered with smooth, long, narrow-pointed leaves. Its flowers are of the papilionaceous kind, and are succeeded by numerous pods of a russet colour, shaped like those of the *English Pea*, but more flat. These are divided into four or five cells, containing as many flattish pease, which are somewhat astringent, but agreeable and nutritious.

The Arnotta, or Roucou Shrub, is a woody plant, diverging into several branches, usually about nine feet in height, covered with long, narrow, pointed, green leaves, disposed on the branches in alternate order. The middle and transverse ribs, to these leaves, are of a red colour. The flowers are pentapetalous, and of a blueish yellow colour. The
petals

petals inclose several stamina, crowned with apices, of a purple colour : from the middle of these arises a style, which contains the embryo of a succeeding, echinated, conic pod, which is divided into several longitudinal cavities, that are filled with small seeds, which, when ripe, are covered with a beautiful crimson pulp. The Roucou is mostly cultivated by the *Indians*, and its seeds macerated in the juice of lemons, in which the gum of the Mauna Tree has been dissolved, yields the celebrated *Indian Pigment*, or *Crimson Paint*, with which the Natives adorn their bodies.

The *French Guava Tree* is a ligneous plant, composed of several branches, about twelve feet in height, with large oval leaves disposed in pairs. From the principal stem arise several erect spikes, covered near the top with clusters of
yellow

yellow pendulous flowers.—These flowers, when bruised, afford a juice which is highly astringent and desiccative, and which Dr. *Hillary* esteems a specific for the cure of ring-worms, which in this climate are extremely troublesome.

The *American Aloe Tree*, or *May-Pole*, is no less admirable than beautiful, being usually planted in gardens and walks. The trunk of this tree is ever green, usually about nine inches in diameter, and twenty-five feet in height. Its bark consists of elegant triangular laminæ, or follicles, which terminate in a prickly point; these gradually diminish in size, as they approach the top. The internal substance, both of the trunk and its branches, is a white spongy pith. The trunk, near the earth, is surrounded by a thicket of leaves arising immediately from the roots.

roots. These leaves are four feet in length, seven or eight inches in width near the middle, where they are wider than at or near the root; they are pointed at the end, and are about half an inch thick, covered with a smooth tegument of a beautiful green colour; their internal substance is white, spongy, and saponaceous. The branches arise alternately, about ten feet below the summit of the trunk; they are short and numerous, each sustaining a very large compact cluster of yellow flowers; each of these flowers is supported by short cylindrical light green pedicles, and consist of six pointed petals, surrounding an equal number of long stamina, with large apices, which are covered with yellow farina. From the centre arises the pistil. As the flowers fall off, their pedicles shoot into broad pointed leaves, closely connected in form

form of a sucker. These contain the embryo of a future tree; when these have arrived to maturity, the trunk of the tree falls to rise no more, and its surrounding leaves wither and decay. This tree, after three months growth, arrives at full magnitude, and puts forth its blossoms in perfect bloom.

The Silk Grass Plant nearly resembles the *American Aloes*, but the height and diameter of its trunk is less. Its flowers are single, consisting of six oval petals, inclosing as many stamens with apices, and surrounding a pistil. Its leaves arise in a large cluster immediately from the root; they are about three feet in length, and resemble those of the *American Aloes*, but are somewhat thicker, and their edges are moderately indented, the spaces between each indenture rising into prickly points. The internal
substance

substance of the leaves is a congeries of strong, small, white fibres, or threads, running longitudinally the whole length of the leaf, and mixed with a saponaceous pulpy substance, which is used for washing by the Negroes. The threads are separated from this substance by bruising, macerating, and beating. The Silk Grass is chiefly cultivated by the *Indians*, by whom it is termed Curreta.

The Aloe Vulgaris, or Aloes Plant, consists of several leaves, which diverge from the stalk, at the very surface of the earth. These leaves are about two feet in length, and five inches in breadth at their middle, from whence they diminish, terminating in a point. They are about six or seven lines in thickness, and are covered with a strong smooth green tegument, being laterally de-

E fended

fended by strong small prickles, placed the whole length of the leaf, on each side, at half an inch distance from each other. In the center of the leaves rises a slender conic stalk, growing about eighteen inches above the summit of the leaves, being sometimes forked. Near the top it puts forth several pendulous, monopetalous, yellow flowers, from which are produced numerous seeds, which, when ripe, are small, and of a blackish colour. Within the external tegument of the leaf, is contained a soft succulent bitter pulp, from which exudes a thick gelatinous juice, which being indurated, either by the heat of the Sun, or by boiling, makes the Aloes. The Sun-dried Aloes, however, is much the best for internal use, and sells for a much greater price.

The

The Vegetable Musk Plant is about four feet in height, dividing into several small branches. Its leaves are large, and divided into three sections, each of which is indented, and pointed. The flower is of a beautiful yellow colour, consisting of five long oval petals, which encircle a large pistil, surrounded at its top with purple apices, covered with yellow farinæ. These are succeeded by green conic fleshy pods, about two inches in length, and one in diameter. These, together with the leaves and branches, are guarded by numerous, fine, hairy spicula, or setæ, which, when the pod is ripe, have strength and elasticity sufficient to create a violent and painful itching, if they are touched by the naked hand. The internal cavity of the pod is divided into longitudinal cells, corresponding in number and direction to its external

angles. These cavities are filled with small oval seeds of a dark brown colour, and bending somewhat in a semicircular form. These seeds strongly diffuse the smell of Musk, and are replete with oil, which in this country is esteemed a specific for the bite of venomous snakes, when taken internally, as is also a cataplasm composed of the bruised seeds, and applied to the wound; both of these I have seen used with success.

The Ocro Plant nearly resembles that of the Musk, except its want of smell, and of those pointed seta which cover the Musk Plant. Its pods are boiled when young and tender, and afford an agreeable nutritious food; being of a mucilaginous, slimy, and lubricative texture. The female Slaves who intend to procure abortion, have found the advantage of previously lubricating the
uterine

uterine passages, by a diet of these pods.

The *Siliqua Hirsuta*, or Cow Itch, is a long slender creeping vine. Its leaves, which are thin, of a middle size, and pointed, are disposed in triparture order, and covered with a soft down. The flowers adhere in clusters; each flower is composed of two narrow purple leaves, about six lines in length. Between these, is a long white pointal, acutely pointed; from this arises several stamina, crowned with apices. Each flower is succeeded by a pod, in shape and size nearly resembling that of an *English Pea*, but more flat, and containing several small purple beans. The pod is obscured by a thick brown coat, composed of very fine, stiff, elastic hairs, or spicula, so acutely pointed, that, upon coming in contact with the

skin, they excite an insupportable itching; but their vermifuge quality, which is unknown in *Europe*, justly intitles them to particular attention. Of this I shall hereafter give you a very minute account, having been particularly conversant with examples of their uncommon efficacy.

Ginger is a species of Reed. From its stalk, which is about sixteen inches in height, arise, in alternate order, several long narrow graminous leaves, which rise in a spiral direction, terminating in a sharp point. The roots are found in the earth, in digitated races, or clusters. The soil of *Guiana*, near the sea-coast, is uncommonly favourable to the production of Ginger, as it also is more particularly to Rice, which delights in a soil exposed to frequent inundations of fresh water; and it is
here

here found sufficient, barely to free the land from its trees, and scatter the Rice on the unbroken ground, which readily takes root, and grows with the most luxuriant fertility, and yielding an amazing increase.

The *Indian* Yams are peculiar to this part of the Continent of *America*, being unknown in any of the *West-India* islands, and are different from either the *Guinea* Yam, or that which is distinguished by a Prickly Vine, both of which are here cultivated to great advantage. The *Indian* Yam is a farinaceous root, of a reddish purple colour, near the size of a man's wrist, and seven or eight inches in length: It somewhat resembles the Potatoo, but has a taste peculiar to itself, which is very agreeable. They are planted in small hillocks, and produce a long slender

vine, with large digitated leaves, and are about ten months in arriving to maturity, from the time they are planted.

I might here proceed to describe the different species of Shaddocs, Forbidden Fruit, *China*, *Seville*, and Sour Orange trees; as also those of the *Lisbon* and *St. Helena* Lemon. The Lime, Citron, Bergamot, Sappadilla, Mammee, Custard Apple, and Cashew trees; as also the Tamarind tree, the *Arabian* Jessamy, Water Lemon, and *Granadilla* Vine, together with the *Anana*, or Pine-Apple, &c. &c. But as these are not peculiar to *Guiana*, and have been repeatedly described already, and as I have nothing new or important to add to these descriptions, I shall pass them over without farther notice, being impatient to penetrate the vast
surround-

surrounding forests, which I now survey with equal wonder and admiration, cloathed in perpetual verdure, and adorned with lofty trees, whose elevated summits are obscured by the impending clouds: Forests, where the liberal hand of indulgent Nature has ranged, in beautiful rustic disorder, an innumerable variety, an immense assemblage of vegetable productions, feeding and sheltering an equally innumerable variety of animal beings. And here I cannot but lament the unpardonable indolence and inattention of the civilized inhabitants of this country, few of whom have ever penetrated the woods farther than the confined limits of their plantations; and hence the properties of that vast multitude of plants and herbs with which the earth is every where covered, remain almost wholly unknown. Many of these

these are known to be the most lethiferous poisons, and many of the others sensibly discover very uncommon properties, and might undoubtedly be converted into the most salutary medicines.

I have spent many days in a dangerous and almost fruitless endeavour to investigate the nature and qualities of these plants; and, by handling, smelling, tasting, &c. I have frequently found, at different times, almost all the several senses, and their organs either disordered or violently affected, without being able to determine to which of the many subjects of my examination, I ought to attribute these uncommon effects. “*Multa venientis
“ ævi populus ignota nobis sciet. Mul-
“ ta seculis, tunc, cum memoria nostri
“ exolverit, reservantur.*” SENECA.

In describing the spontaneous vegetable productions of *Guiana*, I shall observe no other order but that of their magnitude, and even from that I shall sometimes deviate, amidst the rude disorder of these boundless and almost unexplored forests.—And here I must previously desire you to expect no account of an immense variety of productions, whose properties and uses the indolence of the present age has left for the discovery of a more inquisitive posterity.

The Cabbage Tree is first to be considered in the order of magnitude, which I have proposed to follow. Its trunk, which arises from innumerable small long roots, is about seven feet in circumference, and usually one hundred and twenty feet in height; being straight, erect, and regularly tapering
from

from the root to the summit, and entirely destitute of branches, until it is near one hundred feet from the earth, at which place the bark changes from a light grey to a deep green colour. Near the top arise numerous green branches, about twenty feet in length, diverging on all sides, and extending in an horizontal direction. To these, on two opposite sides, are compactly disposed numerous pennated leaves, about two feet and an half in length, and between two and three inches in width, and terminating in a point. These leaves diminish in length the nearer they are disposed to the ends of the branches. The flower, if it may be so called, arises in that part of the trunk where the ash-coloured bark joins the green, and at its first appearance is a green husky spatha, twenty inches in length, and four in breadth; its in-
side

side being full of alternate protuberating knobs, inclosed in small stringy filaments: From these are produced a great number of small oval nuts, in size resembling unhusked coffee-berries. These nuts contain each the rudiments of a future tree. At the very summit of the trunk is found the cabbage, inclosed in a green husky tegument, which being exfoliated, the cabbage appears in long, thin, white, tender flakes, or strata, resembling the kernel of an almond in taste. The trunk of the tree is of a strong ligneous substance, but, like all of the Palm species, to which it belongs, has an internal longitudinal cavity, containing a pithy substance.

The Eta Tree is of the same species with the foregoing, but smaller. It produces cabbage like that; but its
nuts,

nuts, which grow in very large clusters, are globular, in magnitude equal to a large grape shot. They are covered with a yellow pulpy substance, about two lines in thickness, which is extremely delicate and pleasant; within this pulp is a hard shell, containing a kernel, which is the embryo of a future tree.

The Cokarito Tree resembles the former, but is very short, seldom more than thirty feet in height. It produces the most delicate and agreeable cabbage of any of the Palm kind. Its nuts, though somewhat like the former, are less agreeable. The external substance of its trunk, on account of its excessive hardness, is formed into pointed splinters, which being invenomed by the poison of Woorara, are used for the points of their small poison arrows; which

which are forced by the lungs through hollow reeds, a considerable distance.

The Manicole is the smallest of all the Palm kind ; though it often grows straight, erect, and gently tapering, to the height of forty or fifty feet, yet its diameter seldom exceeds eight or nine inches. It is covered with a light brown bark, closely adhering to the wood ; this, however, about three feet below the top, changes to a green colour, and forms a husky integument to the cabbage, which is about the size of a man's wrist, and near three feet in length, resembling that of the Cabbage Tree, as does its leaves and branches, but they are much smaller and shorter. The trunk has joints, within two or three feet from each other, its whole length. Its external hard ligneous substance is not above half an inch in thickness,
and

and is split into a species of thin narrow boards, which, in this country, frequently serve domestic purposes. It produces neither flowers nor nuts, but a spatha, which arises near the top, and divides into twenty or thirty uneven woody chords, or fibres. These are here called Broms, for which they are used. The Cabbage Tree is common in many of the *West-India* Islands, but the Eta, Cokar-Eta, and Manicole, seem peculiar to *Guiana* and *Terra Firma*. The cabbage which they afford, is tender, delicate, and agreeable, and is either boiled, or eaten as a salad; but a long continued use of it, has here been found to generate flatulencies and diarrhœas; these effects, however, may be in a great measure prevented, by the copious use of red pepper. Almost the whole surface of the earth on this coast, within fifty miles

miles of the sea, is covered with trees of Manicole, which are universally esteemed a sure mark of a rich fertile soil, wherever they are found.

The Silk Cotton Tree, in the order of height, should have been considered immediately after the Cabbage Tree, but I thought it most convenient to describe those of the Palm species, in course. It is near one hundred feet in height, and about twelve feet in circumference. The trunk is covered with a light grey bark, studded with short thick prickles. It continues undivided by branches until it is seventy or eighty feet from the ground. At the extremities of each branch are seven long narrow leaves, orbicularly disposed, with such regularity, that they appear like so many sections of one digitated leaf. Just without these arise semicircular rosaceous flowers, consist-

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ing of five white follicles, inclosing the pointal within five stamina tipped with apices; the whole being inclosed by a green calyx: These are succeeded by a pod of a conic form, and about four inches in length. This pod, when ripe, opens and exposes to the wind its contained cotton, which consists of short, fine, silky filaments, intermingled with small blackish seeds. These crops are triennial. The trunk of this tree, rendered concave by fire, makes the *Indian* canoes, which are frequently seventy feet in length, and capable of carrying very great burthens.

The Locust Tree is frequently seventy feet in height, and nine in diameter, being of the filiquose tribe. The trunk is covered with light ash-coloured bark, and continues destitute of branches until near the top, when they arise pretty numerous, covered with oval leaves,

leaves, about three inches in length, and of a dark green colour; these are disposed in pairs, each pair having a single stem, and are always unequally divided by the middle rib. The flowers are of the papilionaceous kind, and are succeeded by flattish pods, about three inches in length and one and an half in breadth, of a light brown colour when ripe, and containing three purple kernels, somewhat like *Windsor* beans, but smaller: These are covered with a light brown, farinaceous, saccharine substance, which the *Indians* eat with great avidity, and which is indeed sweet and agreeable. —From between the principal roots of this tree, exudes a clear, transparent, resinous gum, either of a yellow or red colour: this is found collected in the earth among the roots, in large lumps, and when dissolved in alcohol, or rectified spirit of wine, (for it is indissoluble by an aqueous menstruum,) it affords

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fords

fords a varnish superior even to the *Chinese* Lacque. The wood is of a light brown colour, solid, heavy, and durable, sinking in water, as do almost all the woods of this country.

The Green Hart, or Sipeira Tree, in size and altitude differs but little from the Locust. They are of two species, black and yellow, which are distinguishable only by the colours of the bark and wood, which in the former are much darker than in the yellow. This tree continues undivided by branches, until near the top. The leaves are long, narrow, and pointed, and are disposed on the branches in alternate order. The flowers are of a yellowish white colour, and tetrapetalous. These are succeeded by a farinaceous globular fruit, about an inch in diameter, with which the *Indians* sometimes make a very indifferent species of bread, when they have neglected

lected providing themselves with a sufficient quantity of plantins, cassava, &c. The timber of Green Hart, especially the black kind, is very valuable for its weight, solidity, and permanence.

The Purple Hart Tree grows to equal height and magnitude with the former. It is covered with smooth, dark brown-coloured bark, and its branches arise, near the top, with middle-sized oval leaves, disposed in pairs; the flowers are of a reddish colour, consisting of five petals, these are succeeded by small crimson berries, with seeds.—This wood is of a bright crimson colour, but its outside, after being some time exposed to the air, changes gradually to a deep purple colour. The timber is extremely heavy and durable, and is esteemed more valuable than either of the former.

The Bullet Tree usually grows about fifty feet in height, but is seldom more than six or seven feet in circumference. It is covered with a grey, smooth, closely adhering bark. The trunk, like the former, is destitute of branches, until near the top. Its leaves are long, and narrow towards the foot-stalk. The flowers consist of five petals of a reddish blue colour, which are succeeded by small purple berries. The wood is extremely solid, heavy, and durable; its specific gravity being much greater even than sea-water. It is of a dark brown colour, variegated with numerous small white specks, and is esteemed the most valuable timber for the arms, shafts, &c. of windmills, that the Continent any where produces.

Bow Wood, or Wasceba, is in size and altitude nearly equal to the former. Its bark is brown, and somewhat
 fulcated.

fulcated. The leaves are of a dark green colour, and of a long oval form. The flowers are white and numerous, and the berries, which succeed them, are small, and of a brown colour. The wood, which is of a light brown colour, heavy, durable, and extremely elastic, is used by the *Indians* for making their bows.

The Iron Wood Tree usually grows about fifty feet in height, and the trunk is five or six feet in circumference, covered with a greyish white bark. The leaves are smooth, and of a light green colour, about three inches in length, one and an half in breadth, and narrowest towards the foot-stalk. The flowers are white, succeeded by small berries with seeds; both the coat and internal substance of these berries is of a lively red. The gravity and durability of this wood, has given it the name of

Iron Wood. Of this the *Indians* form large heavy clubs, with sharp edges, which serve them for offensive weapons, a single blow with them being more than sufficient to divide the skull. The Locust, Green Hart, Purple Hart, Bullet Tree, Bow Wood, and Iron Wood, all grow in the internal part of the country, on a dry elevated soil. All these trees are formed into pieces of timber, adapted for the building of windmills, and transported in great quantities, and at a very great expence, to the *English West-India* Islands, where they are sold to the Planters for not less than fifty pounds sterling each piece, especially the principal ones. This occasions the *English* Planters a vast expence, which those of this country intirely escape, as they also do many other disadvantages to which they are exposed.

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The Guaiacum Tree in this country usually grows to about forty feet in height, and the circumference of its trunk is between three and four feet, dividing into numerous branches, on which the leaves, obtusely pennated, are disposed in pairs. The flowers are pentapetalous, and of a violet colour. These are succeeded by berries of a reddish yellow colour, and testicular form, which are commonly used in diet drinks. The use of the wood, and the medicinal qualities of its gum, are already universally known. There is a white species of Guaiacum, which is distinguished only by its white flower, and also a bastard kind.

The Wild Cinnamon Tree is tall, but slender. It produces leaves of the Laurel species, about four inches in length, and one and an half in breadth, smooth, pointed, and of a deep green colour.

colour. The flowers are yellow, and succeeded by small red berries. The bark of the tree is rough, moderately sulcated, near two lines in thickness, of a brown colour, and having a fragrant, aromatic, and pungent taste.

The Mawna Tree grows about fifty feet in height, and its trunk soon divides into many branches ; it is covered with a thin uneven bark, of a light brown colour. It produces leaves of an oval form, with numerous crimson pentapetalous flowers, which are succeeded by nuts, which, when divested of their husky tegument, exactly resemble, in form and appearance, the *Oriental Nutmeg* ; but they do not afford, either in taste or smell, the least aromatic fragrance. When incisions are made in the trunk of this tree, there exudes a yellowish gum, dissoluble in an aqueous menstruum, and which is an ingredient
in

in the composition of the celebrated
Indian Pigment.

The Launa Tree grows about fifty feet in height, being composed of numerous branches, which are covered with a smooth grey bark, having leaves of a dark green colour, and a long oval form, being narrowest near the footstalk; these are somewhat rough on the surface, and disposed in pairs. The flowers are white, and of the tetrapetalous kind; these are succeeded by an oval fruit, in size equal to a *Lisbon* lemon, covered with a rough, greyish green skin. The internal substance of the fruit resembles that of an apple, both in colour and consistence; except that it is somewhat harder. The juice of this fruit, after being a little time exposed to the air, changes from a whitish to a beautiful deep bluish purple colour, and the internal substance of
the

the fruit being bruised and macerated in water, affords the paint so delightful to the *Indians*, and which in colour nearly resembles Indigo. With this they ornament their bodies, by drawing a variety of figures, agreeable to the suggestions of a wanton rustic fancy. These figures, when thus drawn on the skin, are perfectly indelible for the term of nine or ten days, by any art hitherto discovered. When that time is elapsed, they usually begin to disappear, and are soon after invisible. From this fruit, a beautiful ink is likewise made, which, however, in a short time, becomes invisible, and is therefore capable of serving many fraudulent purposes; for which reason, its use is prohibited, under the severest penalties.

The Red Mangrove Tree is common to almost every part of the continent between the tropics, but has been hitherto

therto very imperfectly described, as the manner of its vegetation is uncommon, admirable, and peculiar to itself. It arises from several strong ligneous roots, which immerge above the surface of the earth two or three yards, before they unite at the trunk, which is large, tall, and divides into numerous branches. From the trunk several tough ligneous shoots, about three inches in circumference, germinate, and, descending, take root in the earth. As the tree increases in height and magnitude, these shoots become more numerous, and are seen in great numbers, descending not only from the trunk, but from its most elevated branches, like so many ropes, jointed at every few feet distance, without either leaf or branch, each terminating in a depending pointed head, which enters the earth and takes root. These shoots, after entering the earth, increase in size, strength, and solidity,

and

and become so many props to support the tree against the force of the current tide, and to compensate for the looseness of soil in which they grow, and altogether form an almost impenetrable thicket. The branches are covered with green oval leaves. The flower is a small husky conic calyx, consisting of four brownish petals, which surround the pistil, to this succeeds a flattish brown pod, containing several kernels resembling beans. The external cuticle of the bark is of a light grey, but its internal substance is red, and highly astringent, and is used by the *Spaniards* for tanning leather. The wood is heavy, solid, and durable. I ought to have premised, that this tree grows only in a low wet soil, by the side of current water. There is a species of White Upland Mangrove, which grows at a distance from water, and which, as Nature never does any thing in vain,

is

is destitute of those shoots which support the Red Mangrove.

The *Cassia Fistula* Tree usually grows between forty and fifty feet in height, covered with bark of a light brown colour, somewhat fulcated, and uneven. The branches, which are numerous, arise near the top. The leaves are few in number, of a middle size, narrow, and pointed. Near the extremities of the branches arise clusters of numerous yellow pentapetalous flowers, which are succeeded by depending cylindrical pods, of a dark brown colour, and usually about eighteen inches in length, and between two and three in circumference. The shell of this pod is joined on two opposite sides, from end to end, by longitudinal junctures, one of which is somewhat protuberant. The cavity of the pod is separated into small cells, and each of the partitions, which form these cells,

cells, are covered with a sweet, blackish, laxative pulp ; between these are deposited the seeds, which are smooth and flat. This tree is natural to *Guiana*, where it spontaneously grows in abundance, notwithstanding what has been asserted to the contrary.

The Tetermer Tree grows to near fifty feet in height, and its trunk is often eight or nine feet in circumference, cloathed in a light coloured somewhat uneven bark. The leaves are of a light green, smooth, about four inches in length, and two in breadth, being narrowest at the footstalk. The wood very much resembles mahogany, but is somewhat inferior to it in weight, hardness, colour, and the texture of its grain. It is, however, susceptible of a very good polish, and makes good furniture. These trees grow in great plenty, and afford boards for the ceiling

ing of houses, and almost all domestic uses.

The Caraba, or Crab Tree, grows about forty feet in height, and consists of numerous branches, covered with long narrow leaves, of a dark green colour. It yields numerous white blossoms, which are succeeded by nuts about the size of a large chestnut, being of a flattish angular form; within a thin, brown, husky shell is contained a white oleaginous kernel. From these kernels the *Indians* extract, by bruising, macerating, and boiling, a yellowish, bitter, butyraceous oil, with which they constantly grease and rub their naked skins, for several useful purposes. As this unction, by its excessive bitterness, defends them from musquitos, which, as they are naked, would otherwise be very troublesome, it likewise softens their skins, indurated by being continually

exposed to the rays of the sun, and by obstructing the pores, prevents excessive perspiration, and preserves them from taking cold by the dews, rain, &c.

The Savory Tree consists of many branches, growing about forty feet in height, and is covered with a dark brown coloured bark. The leaves are of a light green colour, of an oval form, and large, being near five inches in length. The flowers are of a yellowish white colour, consisting of five petals; these arise at the extremities of the branches, and are succeeded by a large globular depending fruit, about fifteen inches in circumference. This fruit consists of a white, thick, spongy, external tegument, inclosing two or more flat circular nuts, whose shells are of a reddish brown colour, and fulcated like peach-stones, but are much larger; within
each

each of these shells is contained a kernel of a white, delicate, tender substance, and of a more agreeable taste than any other nut hitherto discovered.

The Ducollabolla Tree grows about forty feet in height, covered with rough bark, of a reddish brown colour. The trunk of the tree seldom exceeds twenty inches in diameter. The branches arise near the top, and are covered with small oval leaves. The flowers are but few, and of a blueish colour; these are succeeded by small purple berries. The wood, which alone renders the tree worthy of attention, is somewhat like mahogany, but of superior quality, being of a deeper red colour, of a finer and more equal and compact grain, of greater hardness and weight, and capable of receiving a more elegant polish.

The Simaruba Tree is peculiar to *Guiana*. It grows usually at a considerable distance from the sea, near the sides of rivers. When at full growth, it is about forty feet in height, branching, and somewhat crooked. It is covered with smooth bark, of a light brown colour. The leaves are large, of a long oval form, and disposed on the branches in alternate order. I have never seen it with either flowers or fruit. The Simaruba is either the bark of the roots, or branches. But the former is the best, and most efficacious, in dysenteries, for which it is esteemed a specific cure. It is of a yellowish white colour, and bitterish taste, being stomachic, somewhat astringent, balsamic, and diuretic.

The Wallabah Tree usually grows about forty feet in height, and two in diameter. It is covered with bark of a reddish

reddish brown colour, slightly sulcated. The leaves are large, of a deep green, and narrow at each end. The wood has a thin white sap, but within it is of a deep red colour, beautifully variegated with whitish streaks and spots. It is hard, heavy, and shining, and would make elegant furniture, was it not so easily split ; but, this quality renders it suitable for staves for sugar hogheads, for which alone it is used. The bark, which is somewhat bitter, is a very good emetic, and the only one which the *Indians* ever use in this part of *Guiana*. They usually boil two or three drams in a quart of water, of which they drink a few spoonfuls, which immediately excite the stomach to vomiting ; these draughts are repeated, until the necessary evacuation is obtained,

The *American* Nutmeg Tree is found only in the far inland parts of the coun-

try. I am informed, it grows to a considerable height and size, but as I have never seen it, can give no particular description thereof. The fruit, when brought to us by the distant Natives, is divided into four quarters, and strung on strings, for the conveniency of drying: by the size of these quarters, I conjecture the fruit to be in bigness equal to an ordinary apple. The texture of its substance is similar to that of the *Oriental Nutmeg*; but it is of a darker brown colour. Its taste is warm and spicy, and it is universally used by the *Indians* as a remedy for diarrhœas, being moderately astringent. Its efficacy, in this disorder, to which the *Indians*, from the nature of their food, are particularly exposed, has encouraged many of the *Dutch* inhabitants to imitate this *Indian* practice.

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The *American* Gum Anime, is the product of a tree, in height about forty feet, having but few branches, and those near the top. The leaves are small, of a deep green colour, and an oval form. The external cuticle of the bark is of a dark brown, and its internal substance of a reddish brown colour. From incisions made in this bark, the Anime exudes, which is a yellowish white resinous gum, having a sweet grateful smell, somewhat resembling that of storax, and a warm pleasant taste. The *Indians* chew it for pains in the stomach, and flatulencies, and often use it by way of suffumigation, for rheums, head-achs, &c.

The Balsam, called by the *Indians* Arrecocerra, is the product of a tree growing about thirty feet in height; but which I have never seen, as it is found only in the inland country. It is

brought to us by the *Indians*, in calabashes, containing about twelve ounces each. It is of a beautiful yellow colour, of a very tenacious texture, and in consistence somewhat softer than Balsam *Tolu*, but like that growing harder by age. It affords a most fragrant smell, nearly resembling that of Balm of *Gilead*, and when held in the mouth, imparts a pleasant bitterish taste. It is liquifiable by heat, but is indissoluble, except a very small portion, either by alcohol or water, neither of these being discoloured by it, though after long digestion they acquire a bitter taste. This is the grand *Indian* vulnerary, for wounds, &c. which it speedily digests incarns, &c.

The Balsam Capivi, or Capoiba Tree, likewise grows in great plenty in the interior parts of *Guiana*, from whence the Balsam is brought by the far inland Natives,

Natives, in large gourds, containing several pounds; but this is too well known to need a description.

I might now proceed to enumerate an almost infinite number of Balsams, Gums, and Refins, which exude from incisions in almost every tree, and shrub: but as the properties of these exotic productions are hitherto unknown, I shall leave them in obscurity, until chance, or future industry, shall have discovered in them qualities which may intitle them to a more particular attention. I cannot, however, omit the Camphor Tree, among the productions of *Guiana*, which Mr. *Sanders*, an ingenious Surgeon in this Colony, of whose veracity I have no doubt, has just informed me, of his having lately discovered, by accident, on the *Friendship Plantation*, where he observed a tree of the laurel species, from whose bark (which had been previously

viously wounded by accident) had exuded a small quantity of real gum Camphor, adhering to the wounded part, and which is doubtless the same with that produced in the Island of *Borneo*. It is by such unexpected incidents, that all our *American* discoveries have obtruded themselves upon our indolent observers; yet, the many very efficacious medicines which chance, rather than sagacity, has thus discovered in the wilds of *America*, and which probably make but an inconsiderable part of those which still continue unknown, ought to incite mankind to more minute and extensive enquiries in these unexplored forests, which, by their immensity and fertility, promise an ample field for successful employment, to all who have fortitude and benevolence sufficient to prosecute an attempt for alleviating the common miseries of our species; an attempt, which having for its object the
health

health and happiness of mankind, would abundantly merit publick patronage and encouragement, which will ever be necessary for the due execution of these designs, while the human species are actuated by those passions and principles, which in every age, and in every clime, have been found the inseparable attendants on humanity.

The Canella Alba, or Winter's Bark, as it is improperly called, is the product of a tree growing plentifully in the interior parts of this country. It is brought and sold to the white inhabitants, by the *Indians* residing far up the rivers of *Essequibo* and *Demerary*. It is a white bark, thicker than cinnamon, and rolled in oblong tubes. It has an acrid, pungent, aromatic taste; but its medicinal qualities are already sufficiently known.

Bourra-

Bourracourra, as it is called by the *Indians*, by the *French*, *Bois du Lettre*, and by the *Dutch*, *Letter Hout*, is the heart of a tree growing about thirty feet in height, and consisting of many branches: it is covered with a reddish brown bark. The trunk is of different sizes, but seldom exceeds sixteen or eighteen inches in diameter. Its leaves, which are of a middle size, are narrow and pointed. The flowers are pentapetalous, and of a purple colour: to these succeed small red berries. After hewing off the white sap, which is very thick, the heart of the tree is discovered, which is very small, seldom exceeding twelve inches in circumference, in a tree whose diameter is sixteen inches. Hence, great labour is required to obtain a very small piece of this wood, which, with its unequalled beauty, and the scarcity of the trees, has rendered it of great value even in this country, where
timber

timber is generally of little consideration. This wood is of great weight, hardness, and solidity, having a fine even grain, of a beautiful deep reddish colour, variegated, in every part of its whole substance, with black spots and figures, which have been tortured into a fancied resemblance of letters, from whence the *European* nations have distinguished it by the name of Letter Wood. It is susceptible of a most elegant polish, which reflects a lustre almost equal to a mirror, or at least superior to any other ligneous substance hitherto discovered; but the smallness of its size seldom admits of its being used, except for walking-sticks, and some very small pieces of furniture. The *Indians*, indeed, form it into bows, which they keep rather for their beauty than use. There is likewise adjacent to these rivers, a great plenty of ebony, fustic, and *Spanish* cedars, together with many other species of

of valuable timber, distinguished only by *Indian* names, as Urobolla, Cerrebolla, Copperbolla, Hatchebolla, &c. &c. but a description of them would be tedious, unentertaining, and perhaps of little use.

The Ducolla Apple Tree usually grows about thirty feet in height, and consists of numerous branches: It is covered with bark of a greyish brown colour. Its leaves are small, of a long oval form, and somewhat resembling those of an *European* Apple Tree. The blossoms are of a yellowish white colour: To these succeed the apple, which has a green echinated tegument, within which is contained a soft pulp of a reddish brown colour, intermixed with many very small seeds. This pulp has a most delicious taste, somewhat resembling that of a marmalade of quinces.—There are in this country a great variety of agreeable

agreeable and salubrious fruits, spontaneously growing in the uncultivated woods, and which compose a considerable part of the food of its aboriginal inhabitants; but the limits I have proposed to myself, will not permit me to enter into a particular description of them.—From the interior parts of the country is brought by the *Indians* a very agreeable Perfume, which is contained in the buds of a small tree. These buds are of a conic form, about six lines in length, and of a reddish brown colour, affording a very agreeable fragrance, and are here usually carried in snuff-boxes, for the sake of perfuming the snuff, and are hence called, by the white inhabitants, the Snuff Perfume.

The Samec Tree is between twenty and thirty feet in height, cloathed in a bark of an ash colour, with leaves of a narrow pointed form. The internal
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substance of the bark consists of long, fine, strong filaments, resembling those of hemp, from which the *Indians* compose their cordage and ordinary hammocks.

The Hearree Tree usually grows near the sides of rivers, at some distance from the sea, and singly by itself, being here said to destroy all vegetables contiguous to it, by its poisonous qualities. It usually grows between twenty and twenty-five feet in height. It has a grey uneven bark, covered with a whitish moss. The branches are but few, and arise near the top, with rough uneven leaves, of a dull green colour; but I have never seen it produce either blossom or fruit. It is here esteemed a most fatal poison; and the smoke of the burning wood is fatal to all animals, when received into the lungs by inspiration; for this reason, on several of the interior
planta-

plantations situated on the sides of these rivers, where a few of these trees have been found, they have been left growing, and the soil adjacent to them has been left uncultivated.

The Caruna, as it is termed by the *Indians*, is the poison nut of a small tree, or shrub, covered with a thin brown bark, and having small, oval, light green leaves. From the extremities of the branches arise several reddish coloured blossoms, which are afterwards succeeded by the nuts. These nuts, deprived of their external husky teguments, appear in form of the *American Anacardium*, being about ten lines in length, five in diameter in the middle, and four near each end, where they bend somewhat inwards. Each nut has a hard brown shell, consisting of four pieces, which are joined laterally and longitudinally, but the circular

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cular longitudinal juncture is considerably nearer to one end than the other, and thereby affords room for a cavity towards the end which is farthest from this juncture. Within this cavity is contained a farinaceous, somewhat oily kernel, equal in size to that of a hazel nut. The substance of this kernel is a slow but most fatal poison, and is said to be a principal ingredient in the composition of a white farinaceous poison, in the hands of the *Accawau* Tribe, which they sometimes conceal under their nails, at their meetings, when they intend to revenge an injury, until an opportunity offers of putting it into the drink of the destined victim of this secret and slow, but fatal vengeance. The shells of these nuts are separated from the kernel, and scoured with ashes, &c. to free them from any noxious quality, and are then strung on strings, and fastened round the ankles
of

of the *Indian* dancers, at their festivals. But the *Indians* are particularly careful not to touch their food whilst they are preparing these shells, nor afterwards, until their hands have undergone the like process of purification.

Nibbees (as they are termed both by the *Indians* and White Inhabitants) are a species of ligneous cordage, of great length and of different magnitude, from half an inch diameter to eighteen inches circumference: these are what the *Spaniards* call Bejucos. They are extremely numerous in the interior and more elevated part of the country, where they are seen mounting to the tops of the highest trees, destitute both of leaves and branches, from thence descending to the earth, again taking root, and remounting the next tree; thus communicating from tree to tree to a great distance, in oblique, horizontal,

and perpendicular directions, like the rigging of a ship, and sometimes entwining themselves with each other, and then surrounding the trunks of the contiguous trees, in spiral ascending circles, and killing them by mere compression; whilst some insert their tendrils into the bark of other trees, and destroy them, by robbing them of their nourishment. The larger kind of these Nibbees are frequently used for mooring vessels of burthen to the shore; whilst the smaller are split into small ligaments, by the *Indians*, and applied to many useful purposes, particularly that of tying the thatch of houses. These Nibbees are, however, of various kinds and properties: Those which are round are generally harmless; but those which are either flat, angular, or channelled into longitudinal grooves, are usually poisons of the most deleterious kind. To this rule, however, there are some excep-

exceptions. The Woorara, which is the principal ingredient in the composition of the fatal *Indian* arrow poison of that name, is of the flat species. Of this poison I shall be more particular hereafter. The poison of several of these Nibbees is so active and fatal, that many of the *Indians* are afraid even to cut them.

Vanilla, or Vanells, are the fruit of a ligneous filiquose vine, bearing large angular leaves, and an anomalous flower, consisting of six petals, five of which are disposed in circular order, and form an impalement round the sixth, which is placed in the centre, and is concave. To these succeed the pods, which, when ripe, are almost round, narrow, about six inches in length, and near one in circumference, being somewhat wrinkled, soft, oily, and of a reddish colour. Within the external tegument is con-

tained a reddish pulp, intermixed with numerous small black seeds, of an aromatic taste, and fragrant smell, somewhat resembling that of Balsam *Peru*. Their use in chocolate is already sufficiently known.

Batts-Bane is the fruit of a woody vine, growing by the edges of water, and supporting itself by the neighbouring trees. It bears a large triangular leaf, and near its top arise several long foot-stalks, supporting clusters of blueish white pentapetalous flowers, which are succeeded by clusters of globular somewhat angled fruit, inclosed in a smooth green husky tegument. They are about nine lines in diameter, and are used by the *Indians* only to poison Batts, (which are here very troublesome,) for which purpose they are very effectual.

Troolies are, perhaps, the largest leaves that have been hitherto discovered in any part of the world. Each leaf is supported by a single stem, which arises immediately from the root, and becomes the middle rib to the leaf, running through its whole length. These stems are hard and strong, being near the root about three inches in circumference, and gradually tapering from thence to the end. Each leaf is from twenty to thirty feet in length, and from two to three feet in breadth. The fibres are strong, and closely connected from one end to the other, without any sections or divisions. Ten or a dozen of these leaves usually grow in a cluster, from a cluster of small fibrous roots; from the centre of the leaves arises a short stem, supporting a cluster of yellowish white flowers, from which are produced a great number of large globular nuts, which consist of a rough

brown external tegument, and a thick, hard, black shell, containing a hard kernel in its cavity, to which there is a passage by a small circular hole; when the kernel is extracted, without breaking the shell, it resembles a small hand grenade, for which it might be a tolerable succedaneum, on account of the weight, thickness, and hardness of the shell. The Troolies grow here in great plenty, and are a very valuable production, serving, with little trouble, to cover the roofs of houses in a very advantageous manner, as they will effectually exclude the most violent rains, and last for many years.

The Muccomucco always grows in water, at the edges of rivers. It is usually at the bottom eighteen or twenty inches in circumference, tapering to its height, where it does not exceed ten lines in diameter. It usually grows
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eight or ten feet in height, and is jointed every few inches. It is covered with a smooth bark, of a light brown colour, but its internal substance is a soft spongy pith. At the very top it divides into two or three green foot-stalks, which support each a large oval leaf. These leaves possess a violent attrahent, or drawing quality; and the Slaves, who frequently feign indisposition to escape a day's labour, often bind them on their feet at night, which the next day are found swelled to an enormous size. The *Indians*, when their eyes are inflamed, often tie them over the eyelids, and a plentiful secretion from the lachrymal glands usually ensues, which generally resolves the inflammation; and the white inhabitants frequently imitate their example with success. These leaves are also applied to vesications, to promote a copious discharge.

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The Roots of Hiarree * are either produced spontaneously, or cultivated by the *Indians*. The latter, however, are much the best, and make a considerable part of the traffic of the *Accawau* Tribe, who barter it with the White Inhabitants, as well as the *Indians* situated near the sea-coast, for such commodities as they want, as it grows only in the interior parts of the country, in a dry elevated soil. It is the root of a ligneous shrubby plant, growing about six feet in height, with large sinuated leaves, which are narrow at both extremities. The roots grow to eight or ten feet in length, continuing of almost equal magnitude until near the extremities, when they diverge into several

* This name is distinguished from that of a poison tree before described, only by an *i* instead of an *e*. And many other of the *Indian* words have so near an affinity in sound, that their dissimilarity is imperceptible, without great attention.

branches.

branches. They are round, about three inches in circumference, and of a tough fibrous texture, resembling that of the fresh dug roots of liquorice, but are covered with a yellowish brown cuticle, or skin, like that of a parsnip. When brought for sale by the *Accarwaus*, they are usually cut into pieces, about two feet in length, and tied up in small bundles. One of these pieces bruised, and thrown into a creek or river, either at the point of high or low water, when the water stagnates, is sufficient to inebriate all the fish within a considerable distance, so that, in a few minutes, they float motionless on the surface of the water, and are then taken with ease; but if they are neglected, they soon recover, unless the water has been impregnated with a very great quantity of the inebriating particles of the Hiarree. Almost all the fish eaten in this country are thus taken, nor has it ever been found

found that they were rendered unwholesome by the Hiarree, whose noxious particles, like those of the Cassava, are probably corrected by a culinary fire. Don *Antonio Ulloa* * mentions a species of herbs used by the *Indians* on the river *Guyaquil*, in *South America*, for fishing, which he says the *Indians* chew, and throw into water. Should the *Indians* of *Guiana* chew the Hiarree, they would expect to become as motionless as the fish which are taken with it; nor am I able to conceive how it can be otherwise with those of *Guyaquil*, since humanity has never yet been found a security against the noxious effects of either natural or artificial productions; nor are there any animals of equal magnitude, so easily affected, either by medicines or poisons, as those of the human species. I will not, however, deny the

* *Relacion Historica del Viage al America Meridional, &c.*

credibility of the fact, on the strength of its improbability; though I conjecture, from several circumstances in the manner in which it is mentioned by *Ulloa*, that he has related it rather from information, than his own observation.

Currawattie, as it is termed by the *Indians*, is the fruit of a large plant found usually in valleys, at the bottom of the sandy hills in the interior part of the country. This plant consists of a cluster of reddish herbaceous stalks, growing four or five feet in length, and supporting large, smooth, thick leaves, of a long oval form, being near eight inches in length. In the center of these leaves is found an erect, tough, fibrous stem, about two feet in height, arising immediately from the root: round this stem appear a cluster of large flesh-coloured tetrapetalous flowers, connected

ed to it by short reddish pedicles. Each flower is succeeded by a quadrangular somewhat oval fruit, in size a little larger than a walnut. This fruit is composed of a compact angular cluster of small aromatic seeds, nearly resembling, both in smell and taste, the Grains of Paradise. These are contained in a tegument composed from four united parts. This tegument is about two lines in thickness, and replete with a bright reddish purple juice, which is somewhat astringent, and is used by the *Indians* for ophthalmies; and when used as ink, it changes, by the air, to a beautiful blackish blue colour, which remains unchangeable. It also communicates a similar dye to linen, cotton, &c. but ferments soon after its expression, (unless it is used,) and then changes to a dull green colour. There is likewise a smaller species, always found contiguous to the larger. The fruit adheres to a
long

long small stalk, diverging into a great number of branches, which are found incumbent upon the surface of the earth.

The seeds of this fruit are not distinguishable from the former, but the tegument is thin, husky, and destitute of that juice with which the other is replete.

The White Ipecacuanha is the root of a plant bearing a stalk about three feet in height, with large, smooth pointed leaves, and yellow blossoms, which are succeeded by round long-pointed pods, about two inches and a half in length, having a smooth green tegument, inclosing an assemblage of white, soft, shining, silky filaments, connected at one end to a great number of small, thin, and flat seeds, of a dark brown colour. The roots are slender, woody, smooth, and emetic; but they are never used

used by the *Indians*, who recur only to the bark of the Wallabba tree for that purpose.

Here are likewise a great multitude of White Rattans, resembling those brought from the *East-Indies*, together with Bamboos, growing in clusters on the banks of the rivers, or in a low, swampy soil, guarded with long prickles, which render them impenetrable. Penguins are likewise spontaneously produced in abundance on the hills, together with a great plenty of small Ananas, or Pine-Apples, which are very sweet and agreeable, together with a variety of other tropical fruits, which it would be tedious to enumerate.

The order, to which I have hitherto adhered, would now lead me to consider the multitude and immense variety of
herbs

herbs which every where cover the surface of the earth, and which probably possess many valuable properties, which, however, are at present unknown; and as a description of these exotic productions, without the knowledge of their qualities, would contribute but little either to utility or entertainment, I shall leave them in obscurity, and finish my Essay on the Vegetable System of this country, with an observation from *Pliny*, which is very applicable to the Natural History of *Guiana* :

“ Multum adhuc restat operis, multumque restabit, nec ulli nato post mille sæcula præcluditur occasio aliquid adjiciendi.”

The great length to which this Letter has already extended, obliges me to defer the subject of my private concerns to a future occasion. Happily,
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indeed, they have suffered but little alteration since I had last the pleasure to assure you of the affection and devotion with which I shall ever continue,

Dear Brother,

Your, &c.

L E T-

L E T T E R I I.

Rio Demerary, Aug. 15, 1766.

Dear BROTHER,

THE disagreeable circumstances which lately occurred in my private situation, and of which I a few days since wrote you an account, being now happily removed, I am permitted to resume the subject of Natural History, than which, perhaps, there is no study capable of affording more rational pleasure to a cultivated mind. Most other sciences terminate in doubt and uncertainty, and after ages spent in laborious researches, we have often the mortification to find, that we

have either pursued a phantom, or an object which Nature has inveloped with a veil impenetrable to human sagacity. The history of actions and events is indeed unconnected with these disagreeable attendants, but is ever united with a series of melancholy accidents, and unamiable truths, which suggest a chain of painful and often humiliating reflections, abundantly sufficient to allay the satisfaction which the mind derives from contemplating the variety and mutability of sublunary events. But the study of Natural History, which ever terminates in certainty, is unaccompanied with these unpleasing attendants, and the mind is left to the full enjoyment of that pleasure, which it ever must receive in comparing the simplicity, variety, and beauty of Nature, in her ordinary operations, with those wanton productions in which she eludes the comprehension of finite reason; and while

while it teaches us the uses and properties of surrounding and distant objects, and their application to the necessities and conveniences of humanity, naturally tends to inspire the mind with sentiments of gratitude to their beneficent Creator.

In the following Letter I propose to give you a description of the Animals inhabiting the country of *Guiana*, and jointly sharing, with the Human Species, the enjoyment of its common blessings. These may be commodiously divided into Terrene, Marine, or Aqueous and Amphibious; but the latter species, to avoid unnecessary divisions, I shall describe among the class of Land Animals: These, pursuant to the example of Mr. *Ray*, I shall range by their most obvious qualities, reserving those of the Human Species, with their Religion, Manners, and Customs, for

the subject of a future Letter, instead of classing them, according to *Linnæus*, with Monkeys.

Among the different species of Land Animals, Quadrupedes seem to demand a primary consideration, as being to mankind the most interesting of the animal creation, on account either of their reciprocal services, or mutual enmity. These are either Savage or Domestic; tho' the number of domestic animals must naturally be few in *Guiana*, where the perpetual absence of winter, by rendering human providence unnecessary for their subsistence, has enabled them to enjoy a life of rustic freedom and independence.

In the following Letter I shall not descend to an anatomical description of the internal structure and mechanism of the Animals of this country, which
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would carry me beyond the limits I have proposed to myself, and perhaps afford but little entertainment. Here it might not be amiss to repeat, what I before promised, relative to the style of this Essay: Natural History, like all other Sciences, has its peculiar language; and the criterion of this language, like that of Nature's operations, is simplicity; which is more particularly necessary in the description of Animals than of Vegetables; and to disguise this simplicity by foreign embellishments, would be as unnatural and ridiculous, as to cloath an Ape in human apparel.

Of Animals with an undivided hoof, there are but three, viz. the Horse, Ass, and Zebra, neither of which are natural to *Guiana*, nor even to any part of *America*: the two former have, however, been transplanted by the *Spaniards*,

niards, and other *Europeans*, and are very numerous in the Savannahs contiguous to the river *Oronoque*, where they run wild, as also Mules, generated by the Afs and Mare.

Among ruminating animals, those of the Beeve kind demand the foremost place ; but neither the Bull nor Cow are natural to any part of *South America*, though, like the Horse and Afs, they have been successfully transplanted into *Guiana*, particularly by the *Spaniards* near the river *Oronoque*, where they likewise run wild, and are become very numerous, being commonly sold for about two dollars *per* head. The policy of *Spain* interdicts all commerce between her settlements and those of the other *European* Nations on this coast ; but many of their Cattle and Mules are notwithstanding transported into the *Dutch* Settlements on *Guiana*,
by

by traders, who either go with a force superior to that of their Guarda-costas, or escape their observation. It has been said, that all *European* animals have diminished on being transplanted to *South America*; but this is far from being the case with the Beeves, who are improved in size, though the taste of their flesh, on account of the excessive perspiration they suffer in this climate, is somewhat less delicate.

Sheep, which are likewise unnatural to *Guiana*, have been transplanted hither, though not with the same success as the former. Here, as in other Tropical Countries, their wool changes to hair; but Nature has supplied this change by the wool of the Cotton tree, which, in warm climates, is better adapted to human uses, than that of the sheep.

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The Goat of *Guiana* is in size but little larger than an *European* Kid ; its hair, however, is similar to that of the Goat in *Europe*. Its horns are short, slender, and incurvated downwards. They are extremely prolific, and usually produce three kids at a litter, and sometimes four or five.

Of Deer, in *Guiana*, there are two kinds, one large, and the other small. The former is both by the Natives and *Europeans* termed Baieu, and the latter Wirrebocerra. The Baieu is a Stag, about the size of the *European* Buck, having a large head, with short horns, curvated at the extremities ; the neck is short and thick ; its ears are large and depending ; the eyes are bright and lively ; and its tail is short and thick : the body is covered with short hair, of a reddish brown colour, except on the belly, where it is white. Their flesh,
though

though good, is inferior to the Venison of *Europe*. They are in great plenty, and feed not only in the Savannahs in the internal part of the country, but at the very confines of the Plantations, and are frequently killed by the *Indian* Hunters.

The Wirrebocerra is at least one third less than the Baieu, and entirely destitute of horns. These seem to be of the same species which Father *Labat* describes at *Cayenne* *. Their whole structure is extremely slender and delicate. Their heads are small, ears narrow and short, necks long and arched, eyes lively and piercing, tails small and short, feet cloven, and their legs slender and nervous, and peculiarly adapted to that velocity of motion, by which alone they are able to preserve them-

* Voyage du Chev. de Marchais en Guinée & à Cayenne, &c.

selves from the attacks of the Tiger, and other voracious animals, whom the great delicacy of their flesh has rendered their enemies. They are covered with a short soft hair, of a reddish fallow colour. They are light, nimble, and extremely timid, and their flesh is the most tender and delicate of all the Deer kind. They are frequently seen swimming across the rivers, when they are easily taken alive, as their slender legs are but ill adapted to the purpose of swimming. *Labat* says they are hunted by Negroes; but in this part of *Guiana* hunting is never undertaken either by Whites or Negroes, but is left solely to the *Indians*, as their native employment, in which they excel all others.

Besides the Hogs, which have been transplanted from *Europe*, and which are become wild in many places, there
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are two species, which are peculiar to those parts of *America* situated between the Tropics, and more especially abundant in *Guiana*; these are, the Picary and Warree. The Picary is considerably smaller than the ordinary *European* Hogs, and his back is beset with long, thick, stiff, grisly bristles, near five inches in length, and is remarkable for a gland resembling a navel, for which it has been generally mistaken, which is seated on the ridge of the back, over the hinder legs, and which secretes a milky liquid, emitting a musky smell. But as a particular description of this animal has been published by Dr. *Tyson*, by whom one of them was dissected, I shall content myself with observing, that they are far from being so terrible as has been represented; for though they usually go in droves, to the amount of near an hundred, the *Indians* always attack them, and seldom fail

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fail of killing a score or two before they escape. The *Indians* are very fond of the flesh; but the peculiarity of the glandulous body on its back is disgusting to the Whites, who seldom eat the flesh of the *Pecary*. The precaution which *Waser* * says the *Indians* of *Darien* take to separate this glandular body, soon after the animal is killed, is likewise observed by the *Indians* of *Guiana*.

Pingo

The *Warree Hog* has likewise been mentioned by *Waser*; but by no other Writer of Natural History. They are here more numerous even than the *Pecary*, being much larger; but, like them, running in large droves. In size and shape they nearly resemble the *European Hogs*, except that their ears are smaller, and they have larger tusks, and are covered with long coarse hair,

* *Vide Voyage to the Isthmus of America.*

or bristles, thickly set on every part of the body. Their flesh is less oily and more delicate than *European* pork, and is much esteemed by the White Inhabitants in these colonies.

A species of the Hippopotamus, or Water Horse, similar to those found on the coast of *Africa*, near the *Cape of Good Hope*, I am informed have been taken in the river *Essequibo*, but of a much smaller size. They are an amphibious animal, delighting in fresh water rivers, and feeding on the grass growing on their banks. These animals, in colour and shape, resemble the Rhinoceros, but their legs are shorter, and of equal size from top to bottom. The head resembles that of a Horse, with a large mouth and nostrils, but small eyes and ears, and his tail is short and blunt, and thinly covered with short hair.

hair. This animal is particularly distinguished by his tusks, which are four in number, rising out of the mouth, a considerable height from the lower jaw, being in size equal to an ox's horn, and extremely white. The skin is an inch in thickness, and, except on the head, almost impenetrable to a musquet-ball. These animals are of great size, frequently weighing between two and three thousand weight, at the *Cape of Good Hope*, though they do not exceed twelve hundred at *Essequibo*, if I am rightly informed, for I have never had an opportunity of seeing any one. The flesh is greatly esteemed.

The Laubba, as it is termed both by the Natives and *Europeans*, is an amphibious animal, peculiar to *Guiana*, and of which no description has been ever transmitted to *Europe*. The body of this animal is round, short, and thick,
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in size equal to that of a pig four months old. The neck is thick and short, and the head, in shape, pretty much resembles that of a *Dutch Mastiff's*, or Pug-dog, but both its eyes and ears are much smaller. It has no tail; the legs are short and the feet resemble those of a dog. The Laubba is covered with fine short hair, of a chestnut colour, except under the belly, where it is white; but this chestnut coloured hair is diversified with white circular spots, about three inches in circumference. These animals feed on herbage, grains, and fruit: When pursued, they usually retire to the creeks, and will swim a great distance under water, though they seldom dive so far from the surface as to be invisible to the *Indians*, who commonly shoot them with arrows while under water. Their flesh is extremely delicate and tender, and is by the *Europeans* preferred to all

other kinds of meat, even the venison of the Wirrebocerra not excepted.

Animals of the Ape kind are, in this part of *America*, in greater number and variety, than in any other part of the known world. This extensive variety, from the Orang-Outang to the Sacca-winkee, and the difficulty of procuring them, has engaged me to abandon a design I once formed, of giving you an accurate description of their several species, which, I am fully convinced, could hardly be comprized within the compass of an ordinary octavo volume.

The Orang-Outang of *Guiana* is much larger than either the *African* or *Oriental*, if the accounts of the natives may be relied on; for I do not find that any of them have been seen by the White Inhabitants on this coast, who never penetrate far into the woods.

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These animals, in all the different languages of the natives, are called by names signifying a Wild Man. They are represented by the *Indians* as being near five feet in height, maintaining an erect position, and having a human form, thinly covered with short black hair; but I suspect that their height has been augmented by the fears of the *Indians*, who greatly dread them, and instantly flee as soon as one is discovered, so that none of them have ever been taken alive, much less any attempts made for taming them. The *Indians* relate many fabulous stories of these animals; and, like the inhabitants of *Africa* and the *East*, assert, that they will attack the males, and ravish the females of the human species.

The Ape, here called a Quato, is large, and covered all over with long black hair, except the face, which is bald,

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bald, and wrinkled. The ears are large, and of a human form, the eyes deeply sunk in their orbits, and the nose very much resembling that of a Negro, but smaller. The body is near two feet in length, and round the thorax about eighteen inches in circumference. They have neither beard nor tail. These animals are frequently tamed, and in all their actions demonstrate an uncommon degree of art and dexterity, not without a mixture of that mischievous sagacity for which they are remarkable. When their hands or fore feet are tied behind the back, they will walk and run in an erect position for a whole day, with the same ease and familiarity as though they were in their natural posture. When one of these animals is beat, he immediately runs and climbs a lemon or orange tree; and, if he is pursued, will pick the lemons and oranges, and drop them on the head of the

part

purfuer, and even endeavour to repel him by voiding his excrements upon him, at the fame time making a variety of grimaces, and affuming a thoufand ridiculous attitudes, which afford no fmall diverfion to the fpectators. The males are very lafcivious, and frequently practice felf-pollution; but what is more particularly worthy of notice, is, that the females of this tribe of animals have their menftrua with the fame regularity as thofe of the human fpecies.

The Howling Baboons, as they are here called, feem to be the animals which are here defcribed by *Marcgrave*, and which are called by the natives of *Brafil*, Guereba. They are of the fize of a fox, covered with fine fmooth hair, of a fhining black, except on the legs, where it is of a brownifh chefnut colour. The vifage of this animal is erect, and pretty much refembles that of the

Quato, but its ears are smaller, the eyes more prominent, and the chin is covered with a long straight black beard. They have a long tail, which is almost naked towards the end, the hair being probably worn off, by frequently clasping round the branches of trees, when they remove from one to another. They are the most numerous and vociferous of all the Monkey tribe, and frequently assemble by hundreds, both by night and day, and set up an incessant loud and disagreeable howling, which is heard at a great distance, and is not a little troublesome to the inhabitants. Sometimes the howling is kept up only by one for several minutes, until the rest join in the chorus; but these intermissions are not very frequent, as they seem to abhor taciturnity at these assemblies, and are unwilling to deny themselves the pleasure of contributing a share to this noisy entertainment. Be-
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sides these, there is another Monkey, somewhat larger than the howling Monkey, which is covered with long reddish hair, having large ears, a long red beard, and a long bushy tail. These animals, if possible, make a more hideous yell than the former; but happily their meetings are less frequent.

As the Orang-Outang is the largest, so the Saccawinkee is the smallest of the Ape tribe in *Guiana*. Its name is of *Indian* origin, though it has been adopted by the White Inhabitants. The body of a Saccawinkee, from the head to the root of the tail, is about six inches in length: the tail is about nine inches long, and covered with very long black hair: the head is small, as are the ears, which are almost round; the nose is slender and flat, and the eyes somewhat prominent, and of a shining black colour: the face is covered with

a fine white downy hair, and the body is cloathed with long hair, of a shining black, except at the points, where it is white. These animals are frequently tamed, and their tricks and gestures are not a little diverting; but they can never be divested of a mischievous disposition, for which they are remarkable, and which seems constitutional.

Between the Quato and Saccawinkee there are numerous species of these animals, of intermediate sizes, of which it would be impossible to convey distinct ideas by verbal descriptions, were I able to give them; but notwithstanding I have resided in *Guiana* near three years, I can by no means pretend to have seen all the different species of these animals, almost every day presenting a different kind to my observation, either in possession of the *Indians*, or in the woods, where they are so numerous,
that

that scores are often in view at once. Nor are these animals a little troublesome, as they frequently rob the plantations of fruit, maize, rice, &c. These expeditions they undertake with great sagacity, ever using the precaution to place a centinel on a commodious high tree, to announce the approach of an enemy; a duty to which, it is said, they submit alternately; and that when they are surprized through the negligence or inattention of their centinel, they punish him severely.

The Tiger of *Guiana* claims the precedence among animals of the Cat kind. They are somewhat less than those of *Africa*, and of a more slender structure, though the heads, mouths, ears, feet, toes, and claws are in every respect similar in the mode of conformation. The hair on the back is of a greyish brown, variegated with black stripes, running

running longitudinally from head to tail. On the belly the hair is white, diversified with black stripes, similar to those on the back. The tail is about eighteen inches long, covered with annular stripes of black and brownish grey, disposed in alternate order. They are a very fierce and mischievous animal, frequently making incursions on the plantations, and carrying away hogs, sheep, &c. nor are the human species secure from their attacks, especially at those seasons of the year when they have young; at which time they are very daring and ravenous, as the *Indians* sometimes fatally experience; several instances of their attacking and killing the Natives, even when armed, having happened since my residence on this coast; tho' a late Writer, in comparing the Tigers of *America* with those of *Africa* and *India*, affects to represent them as very despicable animals, in contradiction to what he has advanced

advanced in another part of his work. These, and other inaccuracies, seem somewhat inconsistent with the pretensions of an Author, who boasts of having examined on the spot, “ whatever “ *America*, or the known parts of *Africa*, have produced to excite curiosity.” I will not deny the Author’s assertion on this particular, tho’ I must declare, that I can no where discover the vestigia of his observations in *Guiana*, and some other parts of *America* which I have visited, tho’ the Work, indeed, is not without merit.

The Tiger Cat of *Guiana* is about one third larger than the largest domestic Cats in *Europe*, and its head, whiskers, ears, feet, toes, and claws, very much resemble those of an ordinary Cat, but are larger, and there is a great ferocity in its eyes and countenance. They are covered with a short, fine, soft down,
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of a beautiful chesnut colour, variegated with deep black spots somewhat irregularly disposed. They are a fierce, courageous animal, nor can they be rendered tame by any means whatever.

The Lynx of *Guiana* pretty much resembles the Tiger Cat, but is near twice as large. Its head, ears, feet, and toes, are similar to those of the Tiger, but smaller; its claws are long and femilunar; and its mouth is set with long whiskers: the hair, in the colour and disposition of its stripes, exactly resembles that of the Tiger. This is a fierce, rapacious animal; but I do not find that it ever attacks any of the human species.

The Dogs of *Guiana* seem to be of a species between the Hound and Land-Spaniel: their make is slender, their ears long and pendulous, with a blunt nose,

nose, and large mouth: their bodies are covered with long shaggy hair, generally of a fallow colour. They pursue and start the Game by the scent.

The Badger of *Guiana* is about eighteen inches in length, covered with fine hair, of a dark chesnut colour, except on the belly, where it is of a whitish yellow; and its tail, which is about sixteen inches in length, is variegated with stripes of a similar colour to the hair on the belly: its head is somewhat round, with a long muzzle, and large mouth: the ears are small, and the eyes black and prominent; and his legs are short and thick.

The animal called by the White Inhabitants of *Guiana* an *Indian Coney*, and by the Natives Puccarara, seems to be of an intermediate species between the Hare and Rabbit. In size, the colour

lour of their hair, and shape, they pretty much resemble the Hare; but in the taste of their flesh, and in burrowing in the earth, they resemble the Rabbit. Their legs are about four inches in length; their ears are somewhat small, and roundish; the belly is white; and the head pretty nearly resembles that of a Hare: they have cloven lips, but no tails. They are very prolific, and their flesh composes near one half of the animal food of the Natives, as they are the most numerous, and easily taken, of any other animal, whose flesh is equally palatable. These are probably the same species of animals described by *Waser* on the Isthmus of *Darien*.

The *American* Porcupines are sometimes seen in *Guiana*, but are not very frequent. These animals have been already repeatedly described by the writers

ters of Natural History, and therefore I shall refer you to their descriptions, as I have had no opportunity of accurately examining them.

The Squirrel of *Guiana*, in size and figure pretty much resembles the common *English* Squirrel, but has a very long bushy tail, which it commonly holds in an erect position. The body is covered with smooth fine hair, white on the breast and belly, but in other parts of the body of a pale yellowish brown colour, diversified on each side by a small white longitudinal streak. The hairs on the tail are very long, and of the colour of those on the body, but variegated with white and black colours.

The Rats of *Guiana* are extremely numerous, and much larger than those of *England*, but otherwise, in every respect,

spect, similar. They reside chiefly among the canes; and the inhabitants, after cutting and removing the canes, fire their leaves in circles, by which thousands of them are burnt.

The *American* Hedgehog is peculiar to *Guiana*, being about eight inches in length, and having a short thick head, neck, and tail: on the head are two auditory holes, but no ears. The legs are between three and four inches in length, and each foot is divided into five toes, armed with long pointed bending claws. The back and sides of the Hedgehog are covered with short stiff prickles of an ash colour, tinged with a paleish yellow. The forepart of the head, belly, legs, and tail are covered with fine soft whitish hair; over the eyes the hairs are short, and of a chesnut colour, but on the back part and sides of the head they are both longer and darker.

The

The Tattu, or Armadillo, of *Guiana*, is the largest of that species of animals, being near three feet in length from the snout to the end of the tail. The head and snout are four inches long, and very much resemble those of a Pig, as do its ears. The body is near a foot and a half in length, and covered with a hard shell, consisting of two large pieces or shields, the one over the shoulders, and the other over the hips; the intermediate space is filled by nine oblong girdles, or bands, covered with triangular scales; these are loosely connected by a strong fibrous membrane, and supply the place of articulations, by which the animal is able to bend the shell into a circular form. The legs are short, thick, and scaly; the fore feet have four toes, of which the two middle ones are equal, and the hind feet have five, of which the middle one is longest. The tail is about a foot in length, being thick at

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its root, but gradually tapering to the end, where it terminates in a point; but the upper part consists of several rings. These animals burrow in holes in the earth, which they are very expert at digging: these holes are seen in great numbers, on all the sandy hills distant from the sea. Their flesh, when young and tender, is very delicate; but when old, they acquire a rank musky taste, which renders them disagreeable to the *Europeans*; tho' even then the Natives are fond of them. Besides these, there are a smaller kind in *Guiana*, which are common in *Terra Firma* and *New Spain*.

The Bats of *Guiana* are the same with those near the river of the *Amazons*, being twice as large as those in *England*, and having no tail. The head and body are covered with a soft fine downy hair, of a brown colour. They
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are very expert at bleeding. Most of the inhabitants, whether *Europeans* or *Natives*, in this country, sleep in hammocks, as being more secure from snakes and poisonous insects than beds, and their feet are thereby exposed to these animals, who with great dexterity imperceptibly open the veins, and suck the blood, until they are satisfied; and it is not unfrequent for persons to wake, and find themselves faint and wet with their own blood. They likewise suck the blood of Horses, Mules, Oxen, &c. in the same manner.

The Sloth is also common in *Guiana*, being of the size of a Fox; its fore feet are longer than those behind, and each foot has three claws. But the peculiar characteristic of this animal is, his insuperable aversion to motion, being of all animals the most indolent and inactive: Upon level ground they are unable to

move above forty or fifty paces in a day, and whenever they ascend a tree, never leave it whilst either fruit or leaf is remaining. When by beating they are forced to move, they make the most melancholy pityful noise and grimaces. But as these animals are common to all parts of *America* between the Tropics, and have been repeatedly described, I shall not enter into a more particular description of them.

There are in *Guiana* three species of Frogs: the first is of a yellow colour, shaded with red; the second is of a reddish ash colour, variegated with red streaks; and the third of a brown colour, with white spots.

The Pipa is a large venomous Toad peculiar to *Guiana*, and its young are bred in the back of the male, where the female deposits the eggs. This Toad
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has been accurately described by the celebrated *Ruyseb*, to whom I shall refer you for a farther account of it.

Among the class of Lizards, Alligators evidently claim the first rank. They are frequently seen in *Guiana* in the rivers, and on the sides of rivers near the sea, in shape pretty much like a common Lizard, but near twenty feet in length, and of a dark brown or black colour. The upper edge of the tail is sharp, hard, and indented like a saw: over each eye is a hard scaly protuberance, or knob, larger than a man's fist. The skin with which they are covered, is thick, scaly, and impenetrable to a musquet ball, except at the head. They differ but little, except in colour, or perhaps not at all, from the Crocodile. In the river *Demerary* they are frequently seen, at low water, lying in the mud, to enjoy the sun-shine; and their

young ones, three or four feet in length, are frequently killed on shoar by the Negroes with hoes or bills. They are less mischievous here than they are reported to be in other parts of *America*.

The Iguana of *Guiana* is also of the Lizard kind, and is about three feet in length, from the head to the end of the tail. The skin is covered with small thin scales, and is of a dull brown colour, variegated on the back and sides with bluish streaks, and on the neck with black spots. The legs and feet are of a dull blue colour, and the toes are armed with crooked claws. The back and tail are formed into a sharp edge, which is indented. The skin under the throat hangs loose like a bag, and its jaws are set with sharp teeth like those of a fickle. They run with great swiftness, and are usually killed by the *Indians* with arrows, among fruit trees, a-

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nana plants, &c. The flesh is esteemed a great delicacy by the *Indians*, Negroes, and even White Inhabitants who have long resided in the country. They bite very deep, but their bite is not venomous.

Here is likewise the *Mexican Cameleon*, remarkable for the change and beauty of its colours ; and a great multitude and variety of beautiful Lizards, of different kinds, frequenting the houses and gardens. These are perfectly innocent and harmless ; but the greater part of them are likewise found either in *Brasil*, *Terra Firma*, *New Spain*, or the *Caribee* Islands, and have been already described by *Linnæus*, in his *Système Naturæ*, to which I shall refer you for a particular account of them.

HAVING given you an account of the most curious Animals in this class of Quadrupedes, I shall next proceed to the Description of BIRDS inhabiting the aerial regions of *Guiana*, which, for the variety, vivacity, and lustre of colours that adorn their plumage, are nowhere excelled. These I shall range in the order which *Linnaeus* has observed, in the tenth edition of his *Systema Naturæ*.

The Vultur is by *Linnaeus* defined, a bird with a streight beak, and crooked point; a head without feathers, naked before, and a cloven tongue. The only Vultur I have ever seen in *Guiana* is the dusky grey Vultur with black wings, and a white beak. It has been described by *Sloane* and *Ray*, and is common to *Brazil*, *Terra Firma*, &c.

The

The *Surinam* Falcon has a crooked beak, covered at the base with a wax-like substance; the tongue is cloven, and the head is thickly covered with feathers of a whitish brown colour, as are those of the upper part of the body: those of the under part, as also the prime feathers of the tail, are spotted with yellow and brown, and the legs are yellow. This animal has the power of distending his head with air almost to the size of his body, which he does when he is either angry or terrified.

The *Strix*, or Owl of *Guiana*, is the same as the *Brasilian* called *Caburc* by *Marcgrave*, being of the size of a small Thrush, with a crooked yellow beak, covered with bristly feathers at the base, and having a large head, eyes, and ears, with a cloven tongue; the legs are short and feathered, and the claws black. The head, back, wings, and tail are covered
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with feathers of a pale amber colour, shaded with white; and those on the belly and breast are white, diversified with pale amber coloured spots.

The Red *Lanius*, or Butcher Bird of *Surinam*, has a straight bill, with a tooth on each side near the point, a naked nose, and seemingly lacerated tongue. Its body is of a bright red colour, ornamented with spots like eyes on the wings and tail, which are black at the ends of the feathers.

The Black and White Butcher Bird of *Guiana* has a tapering bill, of a dusky brown colour, and the point of its upper mandible bends over the lower: the feathers at the base of the beak bend forward, and partly cover the nostrils. Its legs, feet, and claws are of a dusky colour, and the head, body, wings, and tail are covered with feathers which are each of them diversified with several transverse

transverse bars or marks of black and white colours.

Among Birds of the Parrot kind, those called Mackaws are the largest. They have all a crooked bill, which assists them in climbing, and whose upper mandible is moveable: their tongues are fleshy, blunt, and undivided; and they have two toes before, and an equal number behind.

The Blue and Yellow Mackaw is in size equal to a large capon, having a wide black semicircular bill, three inches in length, and black claws. The legs are short, and of a dark colour. The skin, about the cheeks and eyes, is diversified with black feathers, and those on the top of the head are green; the neck, back, wings, and tail are blue; the breast, belly, under part of the neck, and tail are of a reddish yellow; and the

the throat is surrounded by a band of a black colour,

The Red and Blue Mackaw is of the size of a hen, with a long tail in form of a wedge. Its upper mandible is black and white; the lower is intirely black; the cheeks are naked, with wrinkles; and the wings are blue above, but reddish beneath; among the covert feathers are several of a yellow colour: the prime middle feathers on the tail are red, and those on the sides are blue.

The Red and Yellow Mackaw is somewhat less than the former, and somewhat rare even in *Guiana*, to which it is peculiar. Both mandibles of its beak are black: the feathers on the back and upper part of the wings are yellow; those on the top of the head and on the breast are red; and the long
feathers

feathers of the wings and tail are blue and red.

Parrots, properly so called, are very numerous, and of different species, in *Guiana*, but none of them are destitute of green feathers, like the ash-coloured bluish Parrot of *Guinea*, the White-crested Parrot, and some others. They fly in large flocks, consisting of many hundreds, and many of them are killed by the *Indians*, who are fond of their flesh. Their natural language is a hoarse disagreeable shrieking noise; and in this country it is almost impossible to teach a Parrot to imitate the language of the human species, or forget their own, whilst they every day hear it from the flocks of wild Parrots. These birds are here distinguished by the name of Parrots properly so called, and those which are termed Creatures: the latter resemble the former in every particular, except

cept that they have less docility, and have a habit of nodding their heads and shrieking when any attempt is made to handle them; a custom of which they can never be divested, tho' they are often taught to speak very distinctly.

The largest Parrot in *Guiana* is called by the Natives *Acushe*. It is almost as large as a Mackaw, and its bill is long, slender, and of a flesh colour. The body is covered with feathers of a beautiful pea-green; those on the top of the head are red, as are the upper edges of the wings. The tail is long, and composed of green, red, and blueish purple feathers. These are frequent in *Demerary*, and often speak very distinctly.

The Blue-headed Creature is of the size of a common Green Parrot; his head is covered with blue feathers; the neck and body are green; the wings have

have green and blue feathers; and the tail, which is short, is composed of red and green feathers: its bill is short, crooked, and of a dull brown or earth colour.

The Yellow-headed Creature is likewise covered with green feathers, variegated with yellow on the top of the head, as are those of the wings. The tail is short, and has both yellow, blue, and green feathers. Its bill is like the former, but of a flesh colour. Here is also

The Green Parrot of *Ray*, with a long tail, naked cheeks, and the upper edges of its wings reddish. Also

The Great Green Parrot of *Edwards*, with a short tail, blue forehead, and crimson shoulders.

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The *Brazilian Green Parrot* of *Edwards*, with a short tail, red face, and blue temples. The green is somewhat obscured by a yellowish shade, and is red beneath the bending of the wings, and on the external sides of two of the tail feathers; but the outer sides of the prime feathers in the wings and tail are blue.

The *Lesser Green Parrot* of *Edwards*, with a short tail, the forehead and wings being ornamented with a red spot, and the top of the head and prime feathers of the wings of a blue colour.

The *Cockatoo* of *Guiana* is less than a common Parrot. Its bill is short and chestnut coloured, the upper mandible bending a good way over the point of the lower one. The head, cheeks, and neck are covered with long loose feathers, of a dull red colour, variegated with

with whitish bars. The feathers on the top of the head are near an inch and an half in length, and these, as well as those of the cheeks and neck, are erected at pleasure. The body and wings are green; and the feathers of the tail, which are short, are some green, and others of a dull red.

The Green Parroquet of *Guiana* is about the size of a small Thrush. Its bill is slender, and of a flesh colour. The iris of the eye is outwardly reddish, but ash-coloured near the pupil: the eyes are surrounded by a circle of bare flesh-coloured skin, about one line in width, and the whole plumage is green, with a variety of shades. These are the most numerous of all the Parroquets in *Guiana*: they are also found in *Terra Firma*, and some of the *Carribbee* Islands.

The Red-headed Parroquet differs from the former only by having the feathers of its head diversified with crimson spots. Here is also

The Brown-throated Parroquet of *Edwards*, with a Long Tail, being of a green colour, but the top of the head, and part of the quill feathers, are blue.

The Long-tailed Green Parroquet of *Edwards*, with a red beak and feet, the feathers of the tail being blue at the point.

The Lory Parroquet of *Edwards*, being of a yellowish green, with a long tail; the hinder part of the head and throat being red, but the top and sides of the head blue : And

The Short-tailed Yellowish-green Parroquet of *Linnaeus*, being of the size of a Sparrow, with a blue spot above and under the wings, and the prime feathers of the wings blue.

The

The *Toucan* of *Guiana* has a monstrous hollow convex red beak, about six inches in length, and serrated outwardly; the nostrils are behind the jaws; the tongue is long and thin like a feather, and its toes are disposed like those of a Parrot. Its size is equal to that of a common tame Pigeon, and its shape resembles that of a Jackdaw. The head is large, and the upper mandible of its beak, at the base, is yellow; the lower one, at its base, is purple; the sides of both mandibles are of a bright scarlet colour: the head is black, except two white spots near the upper mandible. The feathers on every part of the body are black, except the throat and upper part of the breast, where they are white; and the space between the white feathers of the breast and the black on the belly, where the feathers are red, forming a crescent pointing upwards.

The *Picus*, or Woodpecker, of *Guiana*, has a straight bill ending like a wedge, with a long round pointed tongue, and its nostrils are covered with bristly feathers. Its size is similar to that of *Europe*. It has three toes on each foot, and its feathers are a mixture of black and white; but those on the top of the head and under the belly are of a bright red colour.

The *Alcedo* of *Surinam* has a triangular thick straight long bill, with a short flat tongue. It has two very long feathers in the tail: the body is of a blackish blue colour, and the wings are greenish. It is the Swallow-tailed Kings-fisher of *Edwards*.

The *Certha* of *Guiana* has an arched, slender, somewhat triangular bill, with a pointed tongue. Its colour is blue, but the wings and tail are black, and the tail is of an unusual length.

Hum-

Humming Birds in *Guiana* are extremely numerous, small, and various. They support themselves in a steady position close to the flowers, without lighting, by the motion of their wings, which is so very rapid as to be almost invisible: in this position they insert their tongues, consisting each of two fine fleshy threads, into the cavity of a flower, and suck the honey: during this time, the quick motion of their wings makes a humming noise, like that of a Bee. They are the most beautiful of the winged creation, and by much the smallest of the feathered tribe, some of them not exceeding fifty grains in weight. Their nests are extremely small and curious, and are commonly built on the twigs of fruit trees, by the female, the male procuring the materials, of which cotton is the principal. The female lays two eggs at a time, which are clear, white, almost transparent, and

of the size of a pea. Both male and female alternately assist each other in the work of incubation, which lasts the space of twelve days. Their whole food seems to consist only of honey-dew and the juice of flowers.

The Humming Bird is distinguished by a fabulated thread-like crooked bill, longer than the head, the upper mandible being a sheath to the lower, and the tongue is like a thread, forked and tubulous.

The Black *Trochilus*, or Humming Bird, is the smallest of the whole tribe, being not bigger than the top of a man's finger; and from the head to the end of the tail not more than an inch and an half in length. The bill is black and straight, except near its point, where it has a small bend; its length is about six lines, and the size is equal

to

to that of an ordinary pin. The large feathers on its wings and tail are of a fine black, but those which cover the rest of the body have a greenish brown colour, with a red shining inimitable gloss. The head is crested on the top with a small tuft, green at the bottom, but of a sparkling gold colour on the top. The velocity of these birds in flying is so great, that the eye can scarce keep pace with their motion. The whole body and feathers of these Birds frequently weigh less than fifty grains.

The Black and Blue Humming Bird is near twice as large as the former. The large feathers on the wings and tail are of a shining beautiful black; those on the back are of a lively blue; and those which cover the throat and breast are of a changeable crimson, reflecting a variety of beautiful shades, in different lights.

The Small Green and Crimson *Trochilus* is the most frequent of all the Humming Birds in *Guiana*, and seems peculiar to it ; whereas the two former are common to many places in *Terra Firma*, and the *Carribbee* Islands. The size of this bird is about one third larger than the smallest of the two former. Its bill is black, long, and slender ; the feathers on the neck, back, and upper edges of the wings have a beautiful pea-green colour : the top of the head is crested with a small tuft, of a variable crimson colour : the feathers on the breast are likewise crimson ; and the long feathers on the wings and tail are green, crimson, and dark purple. The head is small, with little round black shining eyes.

The Little Brown Humming Bird of *Guiana* is equal in size to the former. The side feathers of its tail are of a violet

violet colour ; and those which cover the body are of a brick coloured brown, and spotted. Besides these, there are in *Guiana*,

The Long-tailed Black-capped Humming Bird of *Edwards*, having long lateral feathers on the tail, of a brown colour, a greenish body, and black cap.

The Black-bellied *American* Humming Bird, having the tail feathers of equal length, and black on the upper side ; the upper part of the body being green, the breast blue, and the body black.

The *Trochilus* of *Linnaeus*, with a ferruginous tail, black wings, and a golden coloured body, whitish underneath : And,

The Green Streight-billed Humming Bird, with brown wings, an ash-coloured belly, and blue crest.

The

The Wild Duck of *Guiana* is somewhat larger than the *English* Tame Duck, which it pretty nearly resembles in shape and colour, but its bill is black and crooked at the end, and the feet and legs are of an ash colour. They are found in plenty, during the rainy seasons, on the banks of rivers near the sea.

Here is likewise a species of Teal, somewhat larger than the common Teal of *Europe*. Its bill is broad and black : The feathers on the head are of a whitish brown ; those of the neck, back, and wings are of a grey brown, variegated with spots and bars of a chesnut colour : the breast and belly are covered with dull white coloured feathers. They frequent the rivers like the former, and at the same seasons.

The Pelican, or Spoon-bill, of *Guiana*, has a streight, flat, wide bill, six inches
in

in length, destitute of teeth, and crooked at the point, where it becomes wider, and circular; the upper mandible being augmented with a nail, and forming a cavity resembling a spoon: this mandible is of a whitish brown colour, transparent, and discovers through its upper surface the red ramifications of its blood-vessels: the lower mandible is of the same colour, but more fleshy and less transparent. The head is bald and whitish, but the body is covered with red feathers, and the toes are connected by webs.

Here is also the *Platylæa* of *Linnaeus*, with a flattish bill, dilated, orbiculated, and flat at the point. It is of the size of a Sparrow: the upper part of its body is brown, but the lower is white; and it has four toes palmated.

The Heron of *Guiana*, with a long, straight-pointed, compressed bill, with a furrow

furrow running from its base towards the point, is the *Ardæa* of *Linnæus*, with a small crest on the back of the head, and a hoary back, the under part of the neck being of a ferruginous colour : the top of its head is black ; the wings are brown, except the secondary feathers, which are black at the points, and it has four toes. The size of this Bird is nearly equal to the Heron of *Europe*.

The Curlew of *Guiana* is the *Indian*, or Red Curlew of *Ray*, having a long roundish arched bill. The body, wings, tail, neck, head, and thighs are covered with feathers of a beautiful bright red colour ; but the long feathers on the wings are black at the points : the legs are long and slender ; the feet are red, having four toes, of which the hindermost have several joints : the body is somewhat less than that of the common *English* Curlew, and the flesh is much esteemed.

esteemed. They are very numerous at the sides of Rivers, near the Sea.

On the Sea-coast, and near the mouths of Rivers in *Guiana*, are large flocks of Plovers, in size and shape answering to *Edwards's* description of the Spotted Plover of *Canada*.

The Spur-winged Water Hen of *Edwards* is likewise found in *Guiana*.

The Peacock Pheasant of *Guiana* has been hitherto unheard of in *Europe*. It is found most frequently in the *Dutch Colonies* of *Berbice*, *Essequibo*, and *Demerary*, and in size is but little less than a common Turkey. Its bill is yellow except near the point, where it becomes blue, being about an inch and an half in length, and convex; its upper mandible is fornicated, and the edge dilated beyond the lower; and the nostrils are partly covered with a convex membrane,
of

of a yellowish colour. The top of the head is crested with a tuft of erect feathers, which are near an inch and an half in length, of a shining black colour, somewhat curling near the points, where they are variegated with white marks, or bars; but these marks are wanting in the female, whose crest is less prominent: all the rest of the body is covered with feathers of a shining black, except the belly, where the feathers are white: the tail is long, and black: the legs and toes differ only in size from those of a common Turkey *. These Birds are

* Since these Sheets went to the Press, the Author had an opportunity of seeing one of these Pheasants, at an Exhibition of Birds in *Piccadilly*. The Keeper told him, it had lately arrived from *Brasil*, where it was called *Curasso* by the Natives. Masters of Ships, sailing to Foreign Countries, constantly purchase the most curious Birds, and transport them to *Europe*, by which means a considerable number of the Birds of *Guiana* have been already described by Naturalists, who never visited that Country.

called

called *Powese* by the Natives, from their cry, which is similar to that name; this being a circumstance which the *Indians* seem to have always regarded in the naming of animals. They are easily tamed, being unable to fly any considerable distance. They are pretty numerous in the woods, and make no small part of the food of those Planters who are supplied with *Indian* Hunters. The flesh is very much esteemed, and when dressed, they so nearly resemble *Turkeys*, as to be often mistaken for them by strangers.

There is a species of Dunghill Hens and Cocks, differing from the common *English* Dunghill Fowl only in being somewhat smaller, and having the feathers rumped and uneven, which are brought from the inland parts of *Guiana*, where they are reared by the *Indians*, and which are doubtless natural to this part of *America*.

The

The Fowl, called by the *Indians* a *Marroodee*, is about the size of a common Pullet, and in shape but little different, except that its legs and neck are somewhat longer : the body is covered all over with feathers of a brownish black colour : the colour of the bill is a dark brown, and the legs are grey. They are extremely numerous in *Guiana*, and perch on trees, making a noise somewhat resembling their *Indian* name : this noise the *Indians* imitate so exactly, that the Birds answer them, and are thereby discovered. Their flesh is much like that of a dunghill fowl, though perhaps somewhat inferior.

The *Hannaquaw* is a Bird of the same species with the *Marroodee*, but of a more slender shape, and their feathers are of a shining black : they likewise roost on trees, and may be heard early in the morning, distinctly, but hoarsely,

hoarsely, repeating the word *Hanna-quaw*, very loud.

The Partridge in *Guiana* is of the same shape as the *European*, but near twice as large. Their feathers are of a light brown, or ash colour, variegated with dark chesnut coloured spots. They commonly run on the ground, skulking among the bushes like a Quail, and, when started, fly with a loud noise. They are fat, round, and plump, and their flesh is greatly admired. They are called *Mams* by the *Indians*.

The only Dove in *Guiana* is the least Turtle of *Ray*, with spotted wings, the prime feathers of the wings and tail being of a dusky colour, the body purplish, and the bill and legs yellow.

The Mocking Bird of *Guiana* has a conical, gibbous, flesh-coloured bill; the nostrils are at its base. The size of these

birds is equal to that of an *English* Black-bird. The top of its head, its breast, and the upper edges of its wings, are of a bright crimson colour; and the feathers on the other parts of the body have a shining black. Their nests are built of hay, &c. and are cylindrical, being twelve or fifteen inches long, and eight or nine in circumference: they are seen depending from the high branches of the tallest trees, and are tossed to and fro by the wind; on which account their great length is necessary, that the Bird may not be thrown out by every gust of wind, which would otherwise happen. The notes of these Birds are sweet and harmonious; but they imitate those of many other Birds.

The Rice Bird of *Guiana* has a bill like the former, and is of nearly the same size. The eyes are small, of a lively black, and surrounded with circles
of

of naked white skin : its head is small, and all its feathers are as black as jet. It frequents fields of rice, from whence its derives its name.

Here is also the Lesser Black Bullfinch of *Catesby*, with a white spot on the shoulders, and on two of the external wing feathers.

Also the Grey *Loxia* of *Linnaeus*, somewhat larger than a Raven, with a short, thick, bluntish bill, the rump and under part of the body ferruginous, and the fourth, fifth, and sixth of the tail feathers white at the base on both sides.

The Blue Finch of *Guiana* has a conical bill, the mandibles receding from each other downwards at the base. The body is covered all over with feathers of a sky blue colour ; but the prime feathers of the wings, and the tail, are shaded with crimson on the outer side.

The Yellow Finch has a bill like the former : its body is of a lively yellow ; but the quill feathers of the wings, and the tail feathers, are variegated with green.

Here is likewise the Greater Bullfinch of *Edwards*, whose body is brown, diversified on the breast, throat, and shoulders with patches of a blood colour.

The Bird here called a *Kishee-kishee* by the Natives, exceeds all the feathered tribe in the lustre and variety of colours which adorn its plumage. It is somewhat larger than a common House Sparrow, and has a conical, straight, sharp bill, of a light carnation colour. Its feathers are a confused assemblage of all the most lively and beautiful colours in nature : among these, yellow, scarlet, green, and a blackish purple, or indigo colour,

colour, have the greatest share : besides these, there are white, black, and blue. All these colours are mixed with such beautiful disorder, that it is impossible to convey an idea of their disposition. These birds are brought by the *Accawau Indians* from the far inland parts of the country ; and even here their common price is two pistoles a pair. Many ineffectual attempts have been made to convey them to *Holland*.

The Red and Blue *Brazilian* Finch of *Edwards* is likewise seen here. It has a bill like the former, but of a bright red : the tail is like a wedge, and reddish, as well as the body ; but the temples, rump, and belly are of a violet colour.

The Green Sparrow of *Guiana* has the head and upper part of the body green, the breast and belly are yellow,

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and the prime feathers of the wings are white on the outer edge.

The *American Sparrow of Seba*, tho' it was sent from *Barbadoes*, is a native of *Guiana*. Its back is of a fine black colour, the belly white, the head and breast of a lively blue, the rump of a deep green, and the wings and tail of a curious black with a purple shade.

The Red-bellied Blue Bird is a native of *Guiana*. It has a fabulated streight bill, with the mandibles nearly equal: its nostrils are almost oval, and the tongue forked. It is of a blue colour, except the belly and back parts, which are reddish.

The Green Black-cap Fly-catcher of *Edwards*, with the prime feathers of its wings black, is also a native of *Guiana*.

The Black *Parus of Linnæus*, with a white, smooth, even bill, and truncated
tongue,

tongue, terminating in bristles, is likewise found in *Guiana*. It is black, with a yellow spot on the wings and tail.

These are the most curious Birds in *Guiana*, tho' there are a multitude of others less remarkable for the beauty of their Plumage: and indeed the number and variety of this Class of Animals is here so great, that several persons in this Colony advantageously employ themselves, with their slaves and dependents, in killing and preserving Birds for the Cabinets of Naturalists in different parts of *Europe*. The manner of doing this is not unworthy of a communication, as it is unknown in *Europe*. A method of preserving the Bodies of Birds from Putrefaction, by filling the cavity of the thorax and abdomen with a mixture of Salt and Allum, after the intestines, &c. had been first extracted, and also by making incisions in different parts of its body, and

filling them with the same mixture, was some time since published in one of the monthly Magazines ; and the author, if I mistake not, thought it an important discovery, which, it seems, he obtained in *Paris*, tho' not without great difficulty.

The method of doing this in *Guiana*, is to put the Bird, which is to be preserved, in a proper vessel, and cover him with High Wines, or the first Running of the Distillation of Rum. In this Spirit he is suffered to remain for twenty-four or forty-eight hours, or longer, according to his size, till it has penetrated thro' every part of his body. When this is done, the Bird is taken out, and his feathers, which are no ways changed by this immersion, are placed smooth and regular. He is then put into a machine, made for the purpose, among a number of others, and its head, feet, wings,

wings, tail, &c. are placed exactly agreeable to life. In this position they are all placed in an oven, very moderately heated, where they are slowly dried, and will ever after retain their natural position, without danger of putrefaction. This method might perhaps in *England* be deemed expensive, as the great duty on Spirits has raised their price to an enormous height ; but in a country where Rum is sold for ten pence sterling *per* gallon, the case is far different.

It ought to be remarked, that the Birds in *Guiana* excel rather in the Beauty of their Plumage than the Harmony and Sweetness of their Notes ; and that the Flesh of Animals, in this and all Tropical Countries, is less succulent, or juicy, than in *Europe*, on account of their excessive perspiration.

THE

THE mechanism of FISH intitles them to the next rank in order after Birds. But there is a Marine Animal which is found on the Coast, or in the Rivers of *Guiana*, which cannot be ranked with the Class of Fish, and which merits a previous description. This is the *Manatee*, or Sea-Cow, called by the French *Lamentin*. This animal is sixteen or eighteen feet in length, and several feet in circumference, especially at the navel, where it is largest. The head is like that of a Hog, but the muzzle is shorter; its eyes are small, and placed in the middle between the snout and ears, or rather auditory-holes, which open and shut: the mouth is large, and has bristles on each side, and its nostrils resemble those of an Ox: the gums in the fore-part of the mouth are hard and toothless; the tongue is short, and almost imperceptible, as is also the neck:

neck : the body is covered with a rough blackish skin, beset with a few hairs : the back has several circular wrinkles, and there are several inequalities discoverable on each side : on the breast are two fleshy paws, or fins, like wings, about eighteen inches in length ; with these the animal supports himself when feeding on the grass on the sides of rivers ; and with these the female holds her young to her breasts, which are like those of a woman. The animal has no fins but the tail, which is horizontal, like that of a Whale. They never intirely quit the water, and delight in fresh-water rivers, tho' they have been seen on the sea-coast. The flesh is commonly fat, and pretty much resembles Veal.

The Salt-water Fish on the coast of *Guiana* are much less delicate than those which live in fresh ; this is occasioned by the muddy water, which extends for
thirty

thirty or forty miles from shore, the whole length of this coast; they are likewise almost all of them destitute of scales. The largest of these Fish is called *Lowlow*, and is about six feet in length and near three in circumference, covered with a blueish silver-coloured skin: the head is long and boney, and the mouth wide; it has a pair of fins a little below the head, and another on the belly; there is also a single fin on the back, and a large one on the end of the tail. This is a salt-water Fish.

The Fish called, by the *Indians*, *Barroketa*, is the largest of the fresh-water kind, being about three feet in length and two in circumference, and almost round. Its shape is pretty much like that of a Salmon, but its scales are larger, and its body thicker in proportion. Its flesh is white, and very fat and delicate. They are found chiefly in
the

the upper parts of the rivers, where they are very plenty.

The Fish called a *Peri* by the *Indians* and White Inhabitants, is about eighteen inches in length, and three in breadth, being flattish, and covered with thin shining scales. It has a fin on each side of the belly, a little below the head, and a single fin on its back, and another at the end of its tail. The head is broad, and the mouth large, and set with long sharp teeth. This is likewise a fresh-water fish, and frequents the small creeks and shores in quest of food. It is extremely voracious, and bites every thing which hangs in the water. The feet of ducks swimming in the creeks are frequently amputated; as have been the breasts of women, and the privities of men swimming in the rivers: for this reason, the White Inhabitants never bathe themselves in the
upper

upper parts of these rivers, where the waters are fresh, without tying a napkin or handkerchief about the waist: this precaution, however, is not made use of by the *Indians* in swimming; but they take care to continue in motion whilst they are in the water; by which means the fish are frightened, and kept at a distance.

There are likewise near the coast, and in the rivers of *Guiana*, Saw-fish, Flounders, *Brazilian* Soles, *Surinam* Mackarel, Drummers, Old-wives, Mulletts, a species of Anchovies, Shrimps, and variety of other Fresh and Salt-water Fish, which I have not observed with sufficient accuracy to describe minutely. There is one, however, of the Eel tribe, which deserves particular attention, and which I shall beg leave to call the Torporific Eel, till it is distinguished by a more proper name.

This

This Fish is a native of fresh water, and is most commonly found in the River *Essequibo*, being usually about three feet in length, and twelve inches in circumference near the middle. It is covered with a smooth skin, of a blueish lead colour, very much like that of sheet-lead which has been long exposed to the weather, being entirely destitute of scales. The head is equal in size to the largest part of his body, but somewhat flat on the upper and lower sides, and its upper surface is perforated with several holes, like those of a Lamprey Eel. The upper and lower jaws extend an equal distance, terminating in a semicircular shape, and forming a wide mouth, without teeth. On the back part of the head are two small fins, one on each side, which, like the ears of an horse, are either elevated or depressed, as the Fish is pleased or displeased. From about eight inches below the head
the

the body gradually diminishes in size to the tail, which ends in a point, without a fin. Under the belly is a fleshy fin, about half an inch in thickness, and near three inches wide, extending from the head to the point of the tail, but diminishing in width, as the body diminishes in size: this, with the two fins on the head, are all that are found on the body of this Eel, which would be nearly round if deprived of the belly-fin. This Fish frequently respire, and elevates his head above the surface of the water every four or five minutes for that purpose. But the most curious property of the Torporific Eel is, that when it is touched either by the naked hand, or by a rod of iron, gold, silver, copper, &c. held in the hand, or by a stick of some particular kinds of heavy *American* wood, it communicates a shock perfectly resembling that of Electricity, which is commonly so violent, that but few are willing to suffer it a second time.

This

This is probably of the same species with the Fish which *Monf. de la Condamine* cursorily mentions in his *Relation abrégée d'un Voyage fait dans l'Intérieur de l'Amerique*, &c. and which he calls “une espèce de Lamproie,” found in the environs of the city of *Para*, on the southern shore of the River of the *Amazons*, “dont le corps comme celui de Lamproie ordinaire est percé d’un grand nombre d’ouvertures ; mais qui a de plus la même propriété que la Torpille. Celui qui la touche avec la main, ou même avec un baton, ressent un engourdissement douloureux dans le bras, & quelquefois en est, dit on, renversé.” This is all which that Gentleman says concerning this Fish ; which pretty well agrees with several particulars observed in the Torporific Eel. But if the shock is conveyed by a staff, as he mentions, it must be of a few particular kinds of wood, as I could

O never

never discover any sensation from touching him with oak, ash, or indeed any kinds of wood swimming in water, which I have tried. What affinity there may be between the shock of the Torporific Eel, and that of the Torpedo, I am unable to determine with certainty, having never felt the latter; but from all the particulars which I have been able to collect relative thereto, I think it is pretty evident, that both are communicated in the same manner, and by the same instruments.

Some years since the celebrated *Monf. de Reaumur* * communicated to the Royal Academy of Sciences at *Paris*, a Paper, in which he undertook to demonstrate, that the shock of the Torpedo was the effect of a stroke given with great quickness to the limb that touched

* *Memoires de l'Academie Royale des Sciences, &c.* 1714.

it, by muscles of a peculiar structure. To this hypothesis all *Europe* have yielded an implicit assent, and M. *de Reaumur* has hitherto enjoyed the honour of having developed the latent cause of this mysterious effect. But if we may be allowed to suppose, what is undoubtedly true, that the shock of the Torpedo, and that of the Torporific Eel, are both communicated in a similar manner, and by similar means, it will be no ways difficult to demonstrate, that the whole of M. *de Reaumur*'s pretended discovery is a perfect non-entity. You may, perhaps, think it an act of presumption in me, to dispute the authority of a man, whose literary merit is so universally acknowledged; but I am convinced, that an implicit faith, in whatever is honoured with the sanction of a great name, has proved a fruitful source of error in philosophical researches; and whilst I have sense and faculties of my own,

am resolved to use them with that freedom for which they were given. Humanity is ever exposed to deception, and the charms of novelty may perhaps have precipitated *M. de Reaumur* into an error. But to demonstrate, beyond the possibility of mistake, that the shock of the Torporific Eel is not the *immediate* effect of *muscular motion*, I need only desire you to consider the following particulars, viz.

1. The Torporific Eel, caught by a hook, violently shocks the person holding the line.

2. The same Eel, touched with an iron rod, held in the hand of a person, whose other hand is joined to that of another, &c. communicates a violent shock to ten or a dozen persons thus joining hands, in a manner exactly similar to that of an electric machine.

3. A

3. A person holding his finger in the water, at the distance of eight or ten feet from the fish, receives a violent shock, at the instant the fish is touched by another person.

4. This Eel, when enraged, upon elevating its head just above the surface of the water, if the hand of a person is within five or six inches therefrom, frequently communicates an unexpected shock, without being touched.

5. No shock is perceived by holding the hand in the water, near the fish, when it is neither displeased nor touched.

6. This Eel is eat by the *Indians* when dead; and,

7. The shock is more violent when the fish is highly enraged.

From these particulars it is apparent, that the shock is produced by an emission of torporific, or electric particles.

That their emission is voluntary, depending on the will of the animal, who emits them for his defence, either when touched or enraged.

That the existence of these particles depends on that of the Eel, and terminates with its life. And

That they are equally emitted from every part of the body.

From whence it is self-evident, that either the mechanism and properties of the Torpedo and those of the Torporific Eel are widely different, or that *Monf. de Reaumur* has amused the world with an imaginary hypothesis : and, from my
own

own observations, as well as the information which I have been able to obtain on this subject, I am disposed to embrace the latter inference.

A very fallacious account of the medical effects of this Eel was lately communicated by one *Vander Lott*, a Surgeon, then in *Essequibo*, but now in *Demerary*, and published in *Holland*, in which the writer endows it with many medical properties, which no other person was ever able to discover, particularly for curing nervous fevers, head-achs, &c. but in this account the marvellous is so abundant, that the Writer, whom I have the honour of knowing, acquired no increase of reputation therefrom in this Colony. Mr. *Vander Lott* calls this fish a Conger Eel, though it has less affinity to that than any other species of Eels. The particles of the Torporific

rific Eel probably produce fimilar effects to those of Electricity, to which they have a near affinity, not only in the sensations which they communicate, but in the medium through which they are conveyed ; for which reason I have known the Eel frequently touched by paralytic patients, though I cannot say with much apparent advantage.

These Fish are caught when young, and preserved in large troughs, made for that purpose, and filled with water. Their usual food is small fish ; and when these cannot be had, they are fed on earth-worms. But the *Blatta*, or Cockroach, is the most agreeable of all food to the fish : when one of these is thrown into the trough, the fish opens its mouth, and sucks it in with great avidity and apparent pleasure, sucking being the usual method by which it
takes

takes its food. From its skin is excreted a slimy substance, which renders it necessary to change the water daily, or at least every other day : for this purpose a cock is placed in the bottom of the trough, whence the water is drawn off, and the trough scowered. On these occasions the fish is frequently suffered to lie motionless, without water, for several hours ; but if he is touched in this condition, the shock communicated is not less violent than usual. The manner of their generation is uncertain. Several attempts have been made to convey these Fish to *Europe* ; but the quantity of fresh water requisite to shift them as often as is necessary, together with the bruises which they must inevitably sustain from the motion of the ship, have hitherto rendered them unsuccessful.

Besides

Besides the Sea Crabs on the Coast of *Guiana*, there is a species of large Land Crabs living in the mud, in which their holes are made, and which cover all the shores of the sea, and rivers near the sea, at low water, when they appear in the greatest numbers. The body is quadrangular, each angle being two inches and an half long. It is supported by a great number of legs, and has two large claws, in shape and size nearly resembling those of a Lobster. Their shells, in different places, are either of a dull white, or a blueish colour. They have an agreeable, though somewhat earthy taste, and are much eaten by all the inhabitants, whether Whites, *Indians*, or Negroes.

N E X T

NEXT in order SNAKES fall under our consideration. Unhappily their immense number and variety constitute one of the principal inconveniencies of this country, and really endanger the safety of its inhabitants; and ought to humble the pride and arrogance of man, by convincing him, that all things are not made obedient to his will, nor created for his use.

One of the largest of this Class of Animals ever seen in *America*, was lately killed on the Plantation *Amsterdam*, in this Colony, belonging to Mess^{rs} the Heirs of *Peter Amyatt, Esq*; in *Amsterdam*. It measured thirty three feet some inches; and in the largest place, near the middle, was three feet in circumference. It had a broad head, very wide mouth, and large prominent eyes: From the middle it gradually tapered
to

to the tail, which was small, and armed with two claws, like those of a Dung-hill Cock, and in the mouth was a double row of teeth. On the middle of the back was a chain of small black spots, running from end to end; and on each side, near the belly, another row of spots, similar and parallel to those on the back; and below these several large black spots centred with white; the rest of the body was brown. In its belly was found a small *Wirrebocerra*, or Deer, so far dissolved by the digestive liquor of the stomach, that no part of it would hang together. The viscera were covered with a great quantity of fat, of which a considerable part was tried and preserved for external application, for pains, bruises, &c. part of which was dispensed almost over the whole Colony. A smaller one was soon after killed on the Plantation *Dalgin*, lying on the opposite side of the river.

Their

Their bite is not venomous. When their stomachs are full, they lye still till their food is digested: it was in that state that both of these were shot in the head. They are said to have the power of fascinating, or attracting animals within their reach.

The *Commodee* is an amphibious Snake, about fifteen feet in length, and eighteen inches in circumference. The head is broad and flattish; and the tail is long, slender, and pointed. Their colour is brown, variegated on the back and sides with chesnut coloured spots. Their bite is not venomous; but they are extremely troublesome, frequenting the creeks and ponds, and destroying Ducks, Geese, &c. When they encounter larger prey, the *Indians* say they kill it by inserting their pointed tails into the *rectum*; hence the White Inhabitants call it the Sodomite Snake.

The

The Scarlet Snake is about five feet in length, and as large as a man's thumb, being all over of a lively scarlet colour, except the belly, where it is of a dull red. The head is flat and wide, and the tail slender. It is an amphibious Snake, and is frequently seen coiled upon the branches of trees at the sides of rivers. I was lately in a boat with a Gentleman who shot one of them in that posture through the middle, and it immediately fell into the river; but though one half of its body hung to the other only by a piece of skin, it had nevertheless the audacity to endeavour to enter the boat to revenge the injury, but was prevented by the oars, as one half of its body was become useless. The bite of these Snakes is esteemed fatal.

The Fire Snake, as it is called, from the signification of its *Indian* name, is near four feet in length, and about the
size

size of a man's finger. It has a flat head, and a large mouth, with a single row of small teeth in each jaw, besides two poisonous fangs, and its tail is slender and pointed: the belly is of a dirty yellow, and the rest of the body of a bright orange colour; and the back is ornamented with a row of black and white spots, disposed in pairs from head to tail. This Snake is of all others the most dangerous to the *Indians*, both because its bite is fatal, and because it frequents places in which there are fires, from whence it has derived its name. The *Indians*, who commonly sleep without covering, in hammocks wrought like a net, find it necessary to make fires near them during the night; and as these fires seldom fail to draw the Fire Snakes, if any are near, they are often exposed, in getting up at night, to the danger of being bitten by them. But experience has taught them to examine carefully

carefully before they step upon the ground, and if any of these Snakes are seen, they either put out the fire with water, if they have any within reach, as is usual, or else throw some of the largest brands at a distance, which the Snake never fails to follow, either from the love of heat, or some innate propensity.

The Woods Master, as the *Indian* name implies, is a short thick Snake, about three feet in length, and five inches in circumference. The tail, if it may be so called, is but little less than the body, and ends bluntly. The colour of the belly is of a dull yellowish brown, and that of the back is a dark brown, chequered with black spots. The head and neck are wide and flat, with long loose scales, which are erected at pleasure, and make a frightful appearance. This Snake never flees from an enemy, and its bite is universally deemed fatal.

Maccou-

Maccourracourra, as it is called by the *Indians*, is a very beautiful, but fatal Snake to those it bites. It is about three feet long, and somewhat smaller than a man's finger. The head is long and slender, and the upper jaw is armed with two long sharp fangs. The colour of the head is scarlet, and the body is decorated with annular bands, or circles, of scarlet, purple, and milk white colours, disposed alternately, from the head to the end of the tail.

The Whip Snake is about six feet long, and but little larger than the stem of a tobacco-pipe. Its belly is white, and its back is a light dull blue. Its body is tough and fibrous, like the lash of a whip, but its bite is said to be harmless.

The *Caruna* is a slender Snake, about two feet and an half long. It is largest near the middle, and the neck is very

P. small;

small; but the head is wide and flat, ending in an acute angle. The belly is whitish, the sides are of a dark brown colour, and the back is covered by a chain of large circular black spots, extending from end to end, and diminishing in size from the middle, in proportion with the body. These Snakes frequent the houses of the inhabitants during the rainy season, and their bite is, by the *Indians*, said to be fatal. Whether this be true, I am now uncertain; tho' I had once like to have experienced its effects; when sitting in a chair one evening, and putting my hand behind me, I perceived something unusually cold, which I took to be the back of the chair, but soon after felt it move; when starting up, I perceived I had laid my hand on one of these Snakes, who was coiled in a heap, with the head uppermost; and as the pressure of my hand had been light, and the warmth

warmth agreeable, he probably intended no injury ; had it been otherwise, the consequence might have been fatal. I, however, did not exercise the same good nature towards him, but immediately killed him, before he quitted the chair. — Accidents of this kind are very frequent in this country, as the houses are more open than those of *Europe*, and the rains frequently drive the Snakes to take shelter in them, where they are often found under the tables and chairs, and even beds.

The *Ibonuna*, as it is called by the *Indians*, seems to be the *Cobra de Coral* of *Brazil*. It is between two and three feet in length, and about two inches in circumference, with a pointed tail, and white belly. The head is covered with white cubical scales, edged with black, and the back is adorned with red, black, and white spots, in alternate order. The

edges of the scales, which compose the red spots, are black, as are those which compose the white. Its bite is deemed fatal, but its motion is slow. It is the common opinion here, that the more lively and various the colours of Snakes are, the more fatal is their poison; and there are some facts which countenance this opinion; though there are others which contradict it. This I take to be the Snake which *Condamine* calls *La Couleuvre Coral, remarquable par la variété & vivacité de ses couleurs*. Though none but the most loose and imperfect ideas can be derived from the cursory manner in which he mentions almost every particular, and which appears to me very inconsistent with that curiosity, which could engage a man to separate himself from his companions, in a foreign country, and traverse the extent of a wide Continent, in quest of natural knowledge.

It

It is said that there are three kinds *Amphisbænæ*, or Double-headed Snakes, in *Guiana*, though I have never had an opportunity of seeing but one kind, which is the smallest of the three. The form of this Snake is exactly cylindrical from end to end. It is about twelve inches in length, and about as large as the stem of a common tobacco-pipe, being of a dull blue colour. Its scales are so thin and small, that a superficial observer would think it covered only with skin. Its eyes are so small, that they are not readily discovered, and the Snake is commonly reputed blind. Both ends of the Snake have the same external appearance, from whence it has been thought to have two heads, tho' only one mouth is discoverable, which is small, and armed with very fine sharp teeth, almost obscured by the gums, and which are easier felt with a probe, or piece of wood, than seen. The bite of this

Coecilia
annulata
Columba
Cora
colly

Snake is commonly thought fatal, with how much justice I cannot determine. They are frequently seen in the grass, but their motion is very torpid, and they never move at the approach of any person. Whether Naturalists have been deceived concerning the other kinds of *Amphisbænæ*, in different parts of the world, from the appearance of their tails, I am uncertain; the smallness of this Snake renders the deception easy; but in those kinds which are larger, it seems almost impossible that every body should mistake a tail for a head; and yet, except these, there is no animal in nature, that is thought to have two heads*.

* Since these Sheets were sent to the Press, I have received a particular Description of a monstrous *Amphisbæna*, found near *Lake Champlain*, in *North America*, by an Officer in the *American* service, who, with one of his Majesty's Draughtsmen, was, during the late War, sent to make a Survey of that Lake. They were previously informed

There are two kinds of Snakes in *Guiana*, called, by the *Indians*, *Labarra*, whose poison is, of all others, the most fatal: the one is large, and the other small.

formed by the *Indians* of the existence of these Serpents, one of which they killed near a Bay in *Lake Champlain*, which in the Maps of that Country has been since called *Double-headed Snake Bay*. This Serpent was a small one of the kind, it being about fifteen inches in length, and largest near the middle, terminating in a slender tail. The body, at the other end, divided into two necks of equal size, to each of which was joined a perfect head, with two eyes, a large mouth and throat, a forked tongue, with teeth of the same species with those of the Rattle-Snake. The colour of the heads was a dark brown, and the scales on the back and sides were variegated with alternate spots of dark and reddish brown colours, in magnitude and disposition resembling those of the Rattle-Snake. This Serpent was a perfect monster, of whose existence I should strongly doubt, did I not think the veracity of the Gentleman, from whom I have this information, and by whom it was actually killed, unquestionable.

The Large *Labarra* is about three feet and an half long, and near four inches in circumference at the middle, where it is largest, having a slender neck and tail, with a broad flat head, and a wide mouth, armed with two sharp slender fangs, placed in the upper jaw. The colours of its scales nearly resemble those of a Rattle-snake, being of a light brown, variegated with lines of a dark brown, or chesnut colour. This Snake is frequently seen coiled up under boards, fences, &c. nor will it attempt to escape when discovered, or even when attacked; and I have often seen them, when almost dead with bruises, biting the earth with excess of rage.

The Small *Labarra* is about fourteen inches long, and in size equal to the barrel of an ordinary swan's quill. It is covered with small shining scales, of
a dark

a dark brown colour, diversified with white spots: the tail is small and pointed, and the head is somewhat flat, and larger than the rest of the body. An unhappy instance of the fatality of the poison of this Snake, lately happened on the Plantation *Conception*, in *Demerary*, now belonging to the Chevalier *Cornette de Venancourt*, an Officer of eminence in the service of *France*, at the surrender of *Guardalupe*. The person who experienced the unhappy effects of this poison was a Negro Slave, a carpenter by trade, who, in endeavouring to turn a piece of timber, on which he was at work, was bit in the fore-finger of the right hand, by a Snake of this kind, concealed under the timber. The effects of the poison were instantaneous; the Negro had but just time to kill the Snake, when his limbs were unable to support him, and he fell to the ground and expired in less than five minutes from

from receiving the wound. The blood, which had suffered a fatal dissolution by the poison, exuding from the ends of the capillary sanguine arteries, occasioned the appearance of purple spots on every part of the external surface of the body, and hæmorrhages ensued from the nose, eyes, ears, lungs, &c. I was not a witness to this accident, but have related it on the testimony of several persons of undoubted veracity, who were present at the time it happened.

But a particular description of all the Snakes in *Guiana* would fill a volume, and perhaps convey but confused inadequate ideas of the objects themselves. I must desire you, therefore, to suspend your curiosity, on this subject, till I have the pleasure of returning to *England*, when I shall present you with a collection of Snakes, which I am now making. The method which I use, in
pre-

preserving these Animals, may perhaps not be unworthy of a communication.

When the Snake is killed, it must first be washed clean, and freed from all filth and nastiness; then it is to be put into a glass of a proper size, the tail first, and afterwards the rest of the body, winding it in spiral ascending circles, and disposing the back, which is always the most beautiful, outwardly. A thread, connected to a small glass bead, is, by the help of a needle, to be passed thro' the upper jaw from within outwardly, and then thro' the cork of the bottle, where it must be fastened: by this means the head will be drawn into a natural posture, and the mouth kept open by the bead, whereby the teeth, &c. will be discovered: the glass is then to be filled with rum, and the cork sealed down, to prevent its exhalation. A label, containing the name and properties of the Snake,

Snake, is then to be affixed to the wax over the cork ; and in this manner the Snake will make a beautiful appearance, and may be thus preserved a great number of years ; nor will the spirits impair or change the lustre of its colours.

To procure a sufficient number of these objects, I give the Negroes, of all the neighbouring Plantations, a glass of rum for each Snake which they accidentally kill, and bring to me, whether it be fit for my purpose, or not, of which they are not able to judge. By this means, within these three months, which is the time that I have been employed in this undertaking, I have received near three hundred Snakes, among which were between fifty and sixty different kinds ; by which you will be able to form an idea of the number and variety of these animals in *Guiana* ; many of which are extremely beautiful,

tiful, being ornamented with the most elegant figures, delineated by the Pencil of Nature, and the most lively colours, disposed in all the various positions which the most pregnant fancy could imagine.

To discover the names and properties of these Snakes, I have recurred to the assistance of the *Indians* ; tho' not with all the advantage which I expected. Many of the Snakes are wholly innoxious, and their effects are very inaccurately known. Shew an *Indian* a Snake, and ask him the consequence of its bite, and if he is wholly ignorant of the matter, he will nevertheless answer, *Abwanga*, which signifies, that it is bad, or dangerous ; if the word *Mansaga* is joined thereto, which puts it in the superlative degree, I then judge he has some knowledge of it, and that it is reputed fatal. I am often, on these occasions,

casions, entertained by these people with many fables, which are so absurd, that I am in no danger of being deceived by them. But the vulgar, in all nations, are exposed to errors, and the *Indians* are all vulgar.

Among the Snakes which I have already collected, are several which have been already described by the Writers of the Natural History of different parts of *America*; such as, the *Abæ-tulla* of *Surinam*; the *Ammodites* of *Brasil*; the Hunting Serpent, or *Jacaacanga*, of the *Brasilians*; the *Surinam* Asp; the *Aspic Cobra* of *Brasil*; the *Gril* of *Surinam*; the *Æsculapian Serpent* of *Brasil*; the Rattle Snake; the Spotted Orange-coloured *Dipsas* of *Surinam*; the *Dipsas* of *Berbice*, of a Pale-red colour, with Brown Spots; and the Blue *Dipsas*.

I AM

I AM now come to the consideration of INSECTS, the lowest, least organized, but most numerous Class of Animals; different in appearance, and many of them varying the mode of their transitory existence, either creeping or walking on earth, swimming in the watery element, or flying in the liquid regions of air, and occupying every chasm in the Scale of Beings. Many of them, by their minuteness, are imperceptible to our organs of vision; but more of them useless to the purposes of humanity; whilst the greater number are noxious to man, and consequently not created for his use.

Whoever will impartially survey the various Orders of created Beings, and, uninfluenced by the Precepts of Education, or the Arrogance of Humanity, will consider the principles by which
they

they are actuated, and the properties with which they are endowed, will find abundant cause to believe, that every part of animated nature was created for its own happiness only, and each allowed to appropriate to itself such a portion of our common blessings, as is adequate to its power of acquisition, or enjoyment, and consequently, that man, who exults in the flattering idea of universal dominion, and vainly imagines that all Terrestrial Beings are created for his use, like the Tiger, derives superiority only from his superior power and sagacity.

Has God, thou fool, work'd solely for thy good,
 Thy joy, thy pastime, thy attire, thy food ?
 Who for thy table feeds the wanton fawn,
 For him as kindly spread the flow'ry lawn.
 Is it for thee the lark ascends and sings ?
 Joy tunes his voice, joy elevates his wings.
 Is it for thee, &c.

POPE.

Among

Among the Class of Insects, many Animals are found, which, by their paucity of organs, and simplicity of structure, approach so nearly to Vegetables, that it is difficult to determine where the Animal ends or Vegetable begins : And this imperceptible gradation is observed through all the Productions of Nature, from reasoning Man, to the scarce animal Polypus ; and from the Sensible Plant to the scarce vegetable Moss, all are exquisitely adapted to effect the divine Purpose which influenced their creation.

As the mechanism of Insects is less complex, so their actions are thought less sagacious than those of Quadrupeds ; yet even this inferior Class of Beings affords examples of sagacity worthy of human imitation. The Hostile Artifice of the Spider, the Provident Industry of the Ant, and the Order and

Q

Oeco-

Oeconomy of a Republic of Bees, have long been objects of admiration: and that principle which regulates the Actions of Brutes, and which is distinguished by the scarce intelligible name of Instinct, is more vigorous, of readier use, and less fallible, than the boasted Reason of Man, which often betrays the Human Species to Errors, greater than were ever observed among the Brute Creation.

The multitude and variety of Insects is incredible in *Guiana*, where the warmth and humidity of climate facilitate their production, and where their longevity is unimpaired by winter, or their activity chilled into a torpid lethargy for one half of the year. Here a *Swammerdam* or *Reaumur* might find ample employment, for an age of industry, in describing the various Species of this Class of Animals. For me, I am
really

really discouraged from undertaking so extensive a task ; for the due execution of which I have neither the requisite patience, leisure, or inclination. To describe the Proboscis, Antennæ, or Pinnæ of a Flea ; to delineate the Colours of a Butterfly, or the Mechanism of a Caterpillar, would to me be tedious. That “ *Natura nunquam magis quam in minimis tota est,*” as *Pliny* says, may be, in some measure, true ; but I have not yet studied myself into a habit of investigating the minutiae of Nature, and shall therefore only take a cursory review of the Insects of this Country, and with all possible brevity describe a few of those which are most worthy of attention.

Animals of the BEE TLE Tribe in *Guiana* are extremely numerous, and so different and uncommon in their formation, that it seems as if Nature sported

in variety. But as these have nothing but the oddity of their mechanism which can recommend them to notice, being neither noxious nor useful to man, I shall leave them in obscurity.

The *Blatta*, or COCKROACH, is a Species of Fly, about an inch in length, having a reddish brown colour, two long feelers, six legs, with forked claws, and two tender soft wings. They are a very troublesome and destructive insect, devouring not only victuals, but cloaths, books, &c. nor is it possible to prevent their getting, when young, into trunks, chests, &c.

BUTTERFLIES are here extremely numerous and various, and their wings are elegantly variegated with the most lively and beautiful colours. I have seen not less than fifty different kinds of Diurnal Butterflies in this country,

try, and the Nocturnal are still more numerous. But as these insects have nothing remarkable but the variety of their colours, and as verbal descriptions can convey but very loose and inadequate ideas of these particulars, I shall not descend to a minute account of them. — There are many persons advantageously employed in this Colony, in catching and preserving these insects for sale in *Europe*. To preserve the Butterfly, when caught, its body is lightly touched with a hair pencil, dipped in spirit of turpentine, and it is then fixed by two or three pins, stuck through its body, to a box, among a variety of others, of different kinds, disposed according to their colours, in elegant order. The spirit of turpentine is necessary, not only to preserve the body from putrefaction, but to prevent its being devoured by the Ants, which in this country would otherwise happen.

The B E E S of *Guiana* are but little larger than the common House-fly in *England*. Their colour is black, and they are armed with stings, which they sometimes exercise upon the Negroes, who, in revenge, eat as many as they can catch. They deposit their Honey in the cavities of hollow trees, in the woods. This Honey has a dark brown colour; a sweet, but less agreeable taste, than the *European*, and leaves a small bitter behind. It is found in large quantities, and is almost as fluid as olive oil. The colour of the wax is a dirty brownish black, and its substance somewhat softer than the yellow wax of *Europe*, having a sweet fragrant smell.

In looking over *Lloyd's Evening Post*, from the 3d to the 5th of *October*, 1763, I observed an article, intimating that the Society of Arts, &c. had received some of this Wax from *Surinam*, and that
many

many of its Members thought it a factitious production, intended, by some *Surinam* wag, to impose on the Society; tho' it has been somewhat imperfectly described, many years since, by *Père Labat*, in his *Voyages, &c. en Guinée & à Cayenne*; who, if I mistake not, recommends it for an ingredient in plasters, and other dressings; and for this purpose I have sometimes known it used by the Surgeons in this Colony, as a succedaneum to the yellow wax, but only when that could not be procured, as has sometimes happened.

This wax is usually formed by the *Indians* into round balls, weighing about two pounds each; and a ball of this wax is often bought from the *Indians*, near the sea, where it is in the greatest plenty, for a fish-hook. The *Indians* have a method of purifying the wax, and rendering it of a lighter colour, by

Q₄ melt-

melting, straining, and boiling it in water and wood-ashes. From this wax they make all their candles, by dipping long wicks of cotton into it, and then rolling them into balls, tho' the light they give is not so clear as the tallow or wax candles of *Europe*.

A N T S in *Guiana* are very numerous, various, and troublesome. They form themselves into a kind of republic, governed by laws, like those of *Europe* : but that provident industry with which the latter provide for their sustenance during winter, is unnecessary for the Ants of *Guiana*, who consequently lead a life of more ease and luxury. The largest species of Ants in this country are black, and about an inch in length. They build their nests very high and capacious ; but in good weather, in the day time, they almost cover the trunks and

and branches of fruit trees, and their bite is extremely painful.

The Flying Ants of *Guiana* are in size almost equal to the former. The head is triangular, with two antennæ, or feelers. The body consists of two parts, connected by a small string: from the forepart, or thorax, arise the legs, which are six in number, and each has three joints. Each Ant has four thin transparent wings, of a reddish brown colour. Their habitations are subterraneous, like those of moles; but in the wet seasons, when the rains have penetrated far in the earth, they are forced to quit their cells, which are drowned in water, and escape by their wings. At these seasons they are often seen in flocks, which obscure the air, and render it difficult to breathe where they come, which is always towards the houses, for shelter.

Wood-

Wood-Ants, or Wood-lice, as they are called by the *English*, and *Poux de Bois* by the *French*, are a small Ant, about two lines in length, and of a whitish brown colour, and a very destructive insect, eating holes in wood, destroying the posts of houses, devouring cloaths, books, &c. They are eaten, with great avidity, by domestic fowls, birds, and lizards, tho' when bruised they afford a very strong, volatile, disagreeable smell. They form a kind of arched roads, about half an inch wide, concave, and somewhat flattish; these are often built on the floors and cielings of houses, extending many hundred feet in length, with a variety of serpentine windings. The convex walls of this extensive habitation are composed of a whitish brown incrustated substance, which is easily destroyed. Within its cavity the Ants live, in a regular, well-ordered society; and when any breach is

is made in this wall, every inhabitant joins in the common labour of repairing the breach, which is effected with surprising rapidity. As soon as one of these habitations is discovered, a hole is immediately made in its walls, and the cavity filled with arsenic, which destroys the Ants, and thereby prevents the mischief which would otherwise ensue. In the woods, however, they frequently inhabit large round nests, divided into a variety of cells, by thin incrustated shell-like partitions. These nests are many feet in circumference, and each contains millions of these insects. They are brought from the woods, and broke among the poultry, who devour the Ants with great avidity.

Among the *F L I E S* of *Guiana*, there are two species of Fire Flies. The largest is more than an inch in length, having a very large head, connected
with

with the body by a joint of a particular structure, with which, at some times, it makes a loud knock, particularly when laid on its back. The Fly has two feelers, or horns, two wings, and six legs. Under its belly is a circular patch, which, in the dark, shines like a candle; and on each side of the head, near the eyes, is a prominent, globular, luminous body, in size about one third larger than a mustard-seed. Each of these bodies is like a living star, emitting a bright, and not small light, since two or three of these animals, put into a glass vessel, afford light sufficient to read, without difficulty, if placed close to the book. When the Fly is dead, these bodies still afford considerable light, tho' it is less vivid than before; and if bruised, and rubbed over the hands or face, they become luminous in the dark, like a board smeared with *English Phosphorus*. They have a reddish

dish brown, or chefnut colour, and live in rotten trees in the day, but are always abroad in the night.

The other kind are not more than half as large as the former, and their light proceeds from under their wings, and is seen only when they are elevated, like sparks of fire, appearing and disappearing at every second. Of these the air is full in the night, tho' they are never seen in the day. They are common not only in the southern but northern parts of *America*, during the summer.

Insects of the G N A T Tribe are extremely numerous and troublesome in *Guiana*. They are called *Muskitoes*, and are of two or three kinds, differing only in degrees of magnitude. They are found chiefly in the marshy low lands near the sea, in the woods, which
are

are rendered uninhabitable by the multitude of these insects, until the trees are cut down, and the wind has free access; upon which they retire farther to the woods. In these places they appear like clouds, filling the air with a buzzing noise, and their bite is extremely painful. When the *Indians* or White Inhabitants are obliged to sleep in these places, which sometimes happens in travelling, or fishing on the seashore, they make a great smoak under their hammocks, in which they wrap themselves all over, and think themselves happy in enduring the trouble of being almost suffocated, to avoid being devoured by these insects.

CATERPILLARS are here extremely numerous and various; but I shall not enter into a particular description of them.

The

The PALM TREE WORM is common not only in *Guiana*, but the *Carribbee* Islands. It is bred in the heart of the Cabbage-tree after it is cut down. They are near as thick as a man's finger, and two or three inches in length. The head is black, and the body appears like a piece of yellowish fat, contained in a fine transparent skin. They are esteemed a delicate morsel, not only by the aboriginal Natives, but by many of the White Inhabitants, particularly the *French*, who roast them before the fire, and mix them with crumbs of bread, salt, and pepper.

SPIDERS are very numerous in *Guiana*, and of several species. The largest, and only one which I shall describe, is here by most people mistaken for the *Tarantula*, a native of that part of *Italy* called *Apuglia*, and of which there is a very minute description in the *Memoirs*

moirs of the Royal Academy of Sciences at *Paris*. The Spider of *Guiana* is divided into two parts; the lower, or belly part, is of an oval form, more than an inch in length, and in circumference equal to a man's thumb, being of a dusky colour, and covered with either grey or brown hairs. It is connected at one end to the upper part, which is flat, and almost square, being about five lines in width, and of a black colour, and hairy. In the centre is a small cavity, at which several lines, running from the corners of each angle on the surface, meet. To this part are connected five pair of legs, about two inches long, each having four joints, and being armed at the end with a pair of red nippers. The eyes are small, black, and shining. From the upper jaw proceed two chestnut coloured semilunar sharp teeth, about half an inch in length, and concave, until within half
a line

a line of the point of the tooth, where the concavity ends, as the extreme minuteness of its point requires solidity. Near the point is a small external lateral hole, communicating with the internal cavity of the tooth. Through this hole, on pressing the tooth, the poison exudes, which is a fine white transparent liquid, appearing like a very small drop of alcohol, and adhering to the orifice of the lateral hole. The bite of this Spider is deemed fatal; but I never knew of any animal who experienced its effects. They form strong thick webs, not much larger than themselves, commonly between the branches of a Coco-nut or Plantin tree. Their eggs are deposited in a white cloth-like bag, which is placed under the Spider's belly, who, at certain seasons of the year, carries it constantly about until the brood is hatched.

The SURINAM SCORPION is of a russet colour, interspersed with a variety of black spots, and is near six inches in length. From the neck proceed two claws, about an inch in length, each having three articulations, and being armed at the extremity with a pair of slender forceps. Besides the claws, it has four pair of legs, the longest of which are near the tail. The tail has six joints, and is forked at the extremity, and armed with two small, crooked, horny, and pointed stings, the uppermost of which is double the length of the other. When the Scorpion runs, its tail is usually coiled up. He usually holds by his claws while he stings with the tail. The wound is venomous, and extremely painful, tho' not fatal, as I once observed in a Negro wench, who was stung by one of these animals in the right side, a little below the short ribs. The wound was almost imperceptible,

ceptible, and without any apparent tumefaction; but the wench, whom I saw within a few minutes after the accident happened, which was in *November 1763*, complained of being excessive cold, tho' the weather was very hot, and had a violent shivering like the paroxysm of an ague, with a quick, weak, tremulous, and sometimes intermitting pulse, sometimes yawning and stretching, and frequently gasping for breath. I was wholly unacquainted with the nature of the poison, or its antidotes, having been but a few months in this part of *America*. Warm cardiacs, however, seemed to be indicated by the symptoms which externally appeared, by which alone my conjectures were governed, as she had lately been purchased from a slave ship, and was unable to communicate her complaints in any language intelligible to an *European*. I therefore directed the fide, which was consider-

ably tumified, to be embrocated with warm olive oil, and gave her internally, every hour, a bolus *ex Theriacâ Androm. cum Camph.* with frequent draughts of a decoction from *Virginia Snake-root, Seneca, and wild Valerian.* This was about noon, and the feverish heat soon became considerably augmented; but in the evening all the symptoms were subsided, and the next morning she returned to her labour. Whether this treatment was of any service I am unable to determine, having never had an opportunity of seeing, or even hearing, of a subsequent case of this kind.

The **SCOLOPENDRA, CENTIPEE, or CENTIPEDES**, tho' its name implies an animal with an hundred legs, has yet only forty; that is twenty on each side, disposed in pairs. Its body is about six inches in length, and five lines in breadth, flattish, of a brown copperish colour,

colour, consisting of twenty articulations, corresponding with each pair of its legs. It moves with equal velocity either backward or forward, and seems to have an head at each end, with a pair of forked hairy feelers; but the head, properly so called, is guarded by a pair of strong sharp forceps. Its bite is venomous, and extremely painful, but not fatal. These, as well as the Scorpions, are found not only in the fields, but in the thatch of houses, among books, boxes, and furniture.

The CHIGGER, or CHIQUE, as it is termed by the *French*, is a small dusky insect resembling a Flea, but somewhat smaller, and happily it is incapable of leaping, or the Torrid Zone would be uninhabitable. This animal gently insinuates itself into the skin of the toes and feet, exciting a moderate itching and redness: this, to a person

familiarized with the country, is sufficient for their discovery and consequent extraction ; but when this does not happen, and the insect is suffered to continue under the skin, it soon fabricates a thin, membranous, capsula, or bag, in which it incloses itself, leaving only a small opening for its head. In this bag it deposits its eggs, which are numerous, and resemble nitts ; these daily increase in number and magnitude, and in a few days the bag is distended to the size of a large pea, by which time the nitts begin to hatch, and if not extracted they form other bags, and at length produce malignant ulcers, &c. But in Whites they are seldom suffered to arise to this maturity. After the bag is formed, it ought to be extracted without breaking, otherwise some of the nitts will be left in the wound, and become Chiggers. When the bag, by any accident, happens to break, it is usual to fill the wound

wound with ashes of tobacco, tho' that of wood is equally effectual in destroying the ova of these insects. They chiefly affect the slaves, who go bare-foot, and whose feet suffer such terrible ravages, that they are often lamed by them. In these cases, a cataplasm of Castile-soap and train-oil is the most effectual application for their destruction. There is a species of these animals that are venomous, and create swellings and inflammations; happily, however, they are uncommon.

SHELLS, which make a considerable part of the Natural History of some Countries, will have little share in that of *Guiana*, where the coast is low, and the shores muddy, the whole of their extent; so that whatever shells are thrown on shore are buried in the earth. Sometimes, indeed, a small patch of sand is found on the shore, with Shells,

but these are not so considerable for their beauty, number, or variety, as to deserve a particular description.

Thus, my dear Brother, I have briefly described the most curious Animals in the different Classes of Quadrupedes, Birds, Fish, Reptiles, and Insects; and in my next shall endeavour to gratify your curiosity relative to those of the Human Species; and assure yourself, that I shall improve every future occasion of testifying the ardent affection with which I have the happiness to be,

Dear Brother,

Your, &c.

L E T-

LETTER III.

Rio Demerary, Oct. 25, 1766.

Dear BROTHER,

AFTER an unavoidable interruption of several weeks, I am again at leisure to resume the continuation of my Essay on the Natural History of this Country, and am happy in finding by yours of the 5th of *September*, which I had yesterday, the pleasure of learning that my former Letter has contributed to your entertainment. Natural History, to uncultivated minds, has fewer charms than the History of Human Affairs, which is connected with a surprizing diversity of inci-

incidents, that to the greatest part of mankind proves more agreeable, tho' less useful.

Pursuant to the order which I have prescribed to myself, I am now, after having described the several kinds of inferior Animals, to give you an account of those of the Human Species, evidently the first Order of sublunary Beings. In this I am sensible that I have inverted the order usually followed by Naturalists ; but have substituted one more natural, and exposed to fewer inconveniencies.

To describe Man, who depends on almost every other animal and vegetable production for his subsistence, and whose wants are more numerous than those of any other terrestrial being, without premising the means which his Creator has provided for supplying these wants, appears

pears to me unnatural: But in the present disposition of things, after having previously considered the several classes of inferior productions, their application to the wants of humanity, and the services which the Human Species derive from them, will naturally appear in the History of Mankind.

The Inhabitants of *Guiana* (I mean those of the Human Species) are either Whites, Blacks, or the Reddish-brown aboriginal Natives of *America*. The promiscuous intercourse of these different people, has likewise generated several intermediate casts, whose colours immutably depend on their degree of consanguinity to either Whites, *Indians*, or Negroes. These are divided into *Mulattoes*, *Tercerones*, *Quarterones*, and *Quinterones*, with several intermediate subdivisions, proceeding from their retrograde intercourse: all which sufficiently demon-

demonstrate, that neither promiscuous generation, nor change of climate, can annihilate the natural characteristic distinctions of these different people. Blacks and Whites, however, are not properly natives of this, or any other part of *America*, having been transplanted hither, the former from *Europe*, and the latter from *Africa*. I shall, however, in a subsequent Letter, subjoin an account of them; but in this shall confine myself to the *Aborigines* of *Guiana*, who, as well as all the Natives of *America*, are commonly, tho' improperly, called *Indians*.

The *Indians* of *Guiana* are divided into several tribes, differing in the degrees of their progressive advancement from the ignorance and ferocity of a state of nature, from which they are but little removed. Those who inhabit the far interior parts of the country are
but

but little if at all known; and indeed there are only four Nations within the confines of *Dutch Guiana*, with whom the *Europeans* have any intercourse; these are the *Carribbees*, the *Accawaus*, the *Worrows*, and the *Arrowauks*. The latter are a friendly, hospitable people, and from the vicinity of their residence, and constant intercourse with the Whites, their manners are better known than those of any other tribe; and as they all agree in many particulars, in describing the three former nations, I shall only mention their characteristic distinctions and peculiarities, confounding the less singular particulars, in their Religion, Manners, and Customs, with those of the *Arrowauks*, for the sake of brevity.

The *Carribbees* are the most numerous, brave, warlike, and industrious of all the known tribes inhabiting *Guiana*.

They

They reside chiefly on the sea-coast between *Essequibo* and the Great River *Oronoque*. They are of a middle stature, well made, with regular and agreeable features. They have a sprightly vivid countenance, and their complexion is the whitest of all the four tribes, the *Arrowauks* excepted. Their language is manly, and very articulate, but is pronounced with a degree of sharpness and vivacity corresponding to their natural disposition. They practise polygamy, and have War-captains, tho' no Sovereigns, or Magistrates. There is no division of land among them, every one cultivating in proportion to his wants and industry; and as they are less indolent than the other tribes, they till much more ground than any of them, tho' a small portion suffices even for them, as they cultivate very little except Plantins and *Cassava* or *Manioc*; from these they make bread; and from these,

these, by fermentation, they make a liquor somewhat like ale, of which more hereafter. They live contiguous to each other, and by blowing a shell, a thousand of them may be collected in half an hour. They paint immoderately, chiefly with *Arnotta*, or *Roucou*.

Wars, hunting, and fishing are the chief employments of the men; agriculture and domestic concerns are abandoned to the women and children, who likewise spin cotton by the hand, but slowly, for want of a proper machine; from this they weave hammocks, but in a very slow and tedious manner, for want of instruction to employ their labour to advantage. Their manner of weaving is by winding the cotton, when spun, round two small wooden sticks of sufficient length, placed at about seven feet distance from each other, disposing the threads singly, parallel and
 conti-

contiguous to each other, till they extend a sufficient width, which is usually six or seven feet : the threads thus disposed serve for the warp : they then wind a quantity of cotton on a small pointed piece of wood, and begin their weaving at one end, by lifting up every other thread of the warp, and passing the pointed stick with the woof under it : this they do until they have gone through the whole width of the warp, and then return in the same manner, taking up those threads which they missed before, and pressing the threads close together. When the weaving is compleated, the hammock is stained with juice of the bark of trees, disposed so as to form various figures, which are red, and ever after indelible. The trees which yield this juice, I am informed, are the Wallaba and Red Mangrove. To weave a hammock in this manner requires the labour of several months,

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and therefore all the other tribes, who have less industry, content themselves with hammocks made either from cotton yarn, or the twisted bark of the Samee tree, connected by net-work. They likewise form the teeth of fish into small cylinders, which they perforate with a small hole from end to end, and then cut the cylinder into many small pieces, which compose so many white, smooth, shining beads, which are strung, and worn for ornament.

Their arms are either bows and arrows, poison arrows, which are blown thro' a hollow reed, or large heavy clubs, made of iron-wood, &c. which are large at one end, with sharp edges, with which they divide the skull of an enemy at a single blow. They have, however, usually lived in harmony with the neighbouring tribes, until of late they have been corrupted by the *Dutch*, and

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excited to make incursions on the interior *Indians*, for the sake of making prisoners, who are afterwards sold to the inhabitants of the *Dutch Colonies*. Upon these occasions they surround the scattered houses of these *Indians*, in the night, while they are sleeping without apprehension of danger, and make them all prisoners: the men, however, who would be apt to escape after they were sold to slavery, are usually put to death, while the women, and children of both sexes, are reserved for sale.

The *Carribbee Indians* are at perpetual variance with the *Spaniards*, and frequently commit hostilities on their settlements at the River *Oronoque*. They retain a tradition of an *English* Chief, who many years since landed amongst them, and encouraged them to persevere in enmity to the *Spaniards*, promising to return and settle amongst them,

them, and afford them assistance ; and it is said that they still preserve an *English* Jack, which he left them, that they might distinguish his countrymen. This was undoubtedly Sir *Walter Raleigh*, who, in the year 1595, made a descent on the Coast of *Guiana*, in search of the fabulous Golden City of *Manoa del Dorado*, and conquered Fort *Joseph*, on the River *Oronoque*.

At the late insurrection of the Slaves in the Colony of *Berbice*, these *Indians* were engaged, by the Governor of *Essequibo*, to fight against the Rebel Negroes, many of whom they killed, as appeared by the number of hands which they brought away, and for which they received a considerable reward. But an adherence to truth obliges me to inform you of a circumstance relative to this expedition, which I am persuaded you will read with disgust ; this is, that

they ate the bodies of those Negroes whom they killed on this occasion : an action, which is considered by *European* nations as so horrid and unnatural, that the very existence of Cannibals has been lately denied by several modern Compilers of History, notwithstanding the repeated attestations of Travellers to the contrary. For persons, however, who have never quitted their native country, to determine concerning the manners of distant unknown nations, and, on the strength of plausible appearances, to impeach the veracity of Travellers, and positively deny those things which, at most, they are but permitted to doubt, is a culpable temerity, which well deserves reprehension. I must, however, do these *Indians* the justice to declare, that they never eat any of the human species, except their enemies killed in battle, to which they think they have as good a right as those animals.

animals by whom they would otherwise be eaten. But you will doubtless think it unnatural for any animal to devour those of its species, even when necessarily killed in self-defence; and in this I am of your opinion; tho' I am sensible that we have been educated in a state of civilization, so different from that of Nature, that we are but ill able to determine what is, or what is not natural. It is certainly more unnatural to kill each other by unnecessary wars, than to eat the bodies of those we have killed: the crime consists in killing, not in eating, as the worm and vultur testify, that human flesh is by no means sacred. But tho' civilized nations abhor eating, they are familiarized to the custom of killing each other, which they practise with less remorse than the Savages. But custom is able to reconcile the mind to the most unnatural objects. What but habitude and custom could

enable us to survey, without an involuntary horror, the mangled carcases of inoffensive animals, exposed in a *London* market, who have been killed to gratify our appetites, and whose care and sollicitude for the preservation of life, demonstrates that they enjoyed a degree of happiness therein, of which at least it is cruelty to deprive them. Man's right over the lives of subordinate animals I will not dispute; the apparent difference in the mechanism of the masticatory and digestive organs of carnivorous and granivorous animals, evidently demonstrates, that Nature designed some for the prey of others: But mankind have a natural capacity for subsisting indiscriminately, either on animal or vegetable food; and numerous instances testify, that the latter is most conducive to health and longevity; and therefore not only humanity, but self-interest, conspire to engage us at least to abridge the quantity

quantity of animal food, which at present we devour with so much avidity.

Monf. *de la Condamine*, I think, cannot allude to the *Carribbee Indians*, when he mentions a nation of Cannibals * North of the River of the *Amazons*; and yet I have never heard of any other tribe of *Indians* in *Guiana*, who eat human flesh.

The *Dutch* maintain a traffic with the *Carribbee Indians* for canoes of different magnitudes, from seventy to ten feet in length, which are formed out of single trees, rendered hollow by fire; for cotton hammocks, spun and

* Car quoiqu'il n'y ait pas aujourd'hui d'Anthropophages le long des bords du Maranon, il y a encore dans les terres, particulièrement du côté du Nord, & en remontant l'Yupara, des Indiens qui mangent leurs prisonniers. — Vide *Relation abrégée d'un Voyage fait dans l'Interieur de l'Amerique, &c.*

woven in the manner I have already related; for wax, manufactured by the black bees, before described; for Balam *Capoiba*, or *Capivi*, which they bring in large gourds; and for several kinds of curious woods; but chiefly for slaves, which they are encouraged to make, as I have just related. In return for these, the *Dutch* give them fire-arms, pieces of *India Salempores*, with which they cover their nudities, hatchets, knives, fish-hooks, combs, and small looking-glasses, together with beads of red coral, on which they put an immoderate value; and glass-beads of different colours, which are worn, in different forms, by the females, who are become somewhat luxurious.

The *Worrows* are a nation of *Indians* inhabiting only the Sea-coast, chiefly between *Demerary* and *Surinam*, tho' some of them are found on both sides
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of the River *Oronoque*. Their stature and size exceeds that of the *Carribbees*; the colour of their skin is much darker, and their features are more irregular and disproportionate; the females being peculiarly disagreeable. They inhabit only the low, wet, marshy places, adjacent to the sea, and live chiefly on crabs and fish. They are a slovenly, timid, indolent people; but withal patient, contented, and happy. Many of them have not sufficient industry to procure the means of purchasing cloth to cover their nakedness, contenting themselves either with the bark of trees, or the reticular covering of a coco-nut or cabbage-tree for that purpose; yet they are often seen with thin oval plates of silver hanging from their noses, to which they are connected by two horns, that embrace the cartilaginous division of the nostrils. Their language is dissonant, and the articulations very indistinct,

stinct, being pronounced with a slow, disagreeable tone. Their Physicians, or rather Priests, are believed to have a particular influence with Evil Spirits, above those of any other tribe.

The *Accawaw Indians* are the most interior tribe that have any communication with the *Europeans*, living near the source of the Rivers of *Essequibo*, *Demerary*, and *Berbice*. Their size and stature pretty much resembles that of the *Worrows*, but their complexion is lighter, and their features are less disagreeable, and they are all distinguished by a circular hole, about half an inch diameter, made in the lower part of the under lip, in which is inserted a piece of wood, of equal size with the hole, which is cut off externally almost even with the circumjacent skin; while the inner end presses against the roots of the fore teeth. The air and behaviour of these

these people is grave and reserved, and they have an unusual degree of art and cunning. Their language is solemn, and its articulations distinct, but harsh. They are not numerous, but are greatly feared by their neighbours, on account of their art in the preparation of Poisons of the most deleterious kind. The Arrow-poison, which they compound, is particularly fatal; and besides that, they have several other kinds of Poison, which, given in the smallest quantities, produces a very slow, but inevitable death, particularly a composition which resembles wheat-flour, which they sometimes use to revenge past injuries, that have been long neglected, and are thought forgotten. On these occasions they always feign an insensibility of the injury which they intend to revenge, and even repay it with services and acts of friendship, until they have destroyed all distrust and apprehension of danger
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in the destined victim of their vengeance. When this is effected, they meet him at some festival, and engage him to drink with them, drinking first themselves to obviate suspicion, and afterwards secretly dropping the poison, ready concealed under their nails, which are usually long, into the drink. These accidents, however, are not frequent; and that they should sometimes happen is not so surprizing, as that they do not oftener intervene in a state in which there is no judicial punishment for crimes, nor any other satisfaction for injuries, but what is procured by violence. To violate the chastity of a wife, is almost the only injury that draws down this fatal vengeance. They frequently make incursions on their interior neighbours, like the *Carribbees*, for slaves; and the vicinity of their residence particularly exposes them to reprisals from those injured tribes. To
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prevent this, all the avenues to their houses are guarded by sharp pieces of hard wood, planted in the earth, and poisoned, except only one obscure winding path, which they use themselves, and make known to their countrymen by private marks. With the *Dutch* they barter slaves, Balsam *Capivi*, a Balsam called *Arrecocerra*, already described, the roots of *Hiarra*, for fishing, oil of *Caraba*, which is collected in large gourds, and pretty much resembles, in colour and consistence, the Palm-oil of *Guinea*, but has a disagreeable smell; different kinds of curious woods, as Letter-wood, Ducolla-bolla, ebony, &c. likewise Vanells, *Arnotta*, *Cassia fistularis*, *Canella alba*, wild Nutmeg, wild Cinnamon, Monkies, Parrots, Parroquets, &c. of all which an account has already been given. In return for these they receive the same things which are furnished to the *Carribbees*.

Beyond

Beyond these *Indians* are several tribes who appear entirely naked, not covering even those nudities, which Nature seems to have taught the inhabitants of other countries to conceal; but these *Indians* are never seen by the *Europeans*, except such only as are sold to slavery.

The last of the four tribes of *Indians*, of which I propose giving you an account, is the *Arrowauks*, who are, in every respect, worthy of a more particular description than either of the preceding. They live on the back of the *Worrows*, about twenty or thirty leagues from the Sea, where the land is elevated, and less exposed to inundations than the Sea-coast, and are the natural proprietors of the greatest part of the land on which the *Dutch* Plantations, in these Colonies, have been, till lately, situated; and in many respects are of no small

small service to the White Inhabitants, who, for these reasons, have by law exempted them from that slavery, to which all the other tribes are exposed, on being sold by each other.

They are of a middle stature and size, strait, and well-proportioned, and the colour of their skin is whiter than that of either of the four other tribes. Their features are very regular and agreeable; their teeth are extremely white and even; their lips thin, eyes black and sparkling, and, like all the aboriginal *Americans*, they have long, strait, black hair, which they often grease with oil of *Caraba*: their chins, and other parts of the body on which hair usually grows among the *Europeans*, are but thinly covered with a soft downy hair, which both males and females themselves extract, as much as possible, from every part of the body, none excepted; this will,

will, indeed, again grow ; but as often as this happens, it is again extracted. The features of the women are delicate, and their limbs slender, but well-proportioned ; nor is a brown skin any ways incompatible with the most perfect beauty : but their rude uncultivated minds incapacitate them from combining mental with personal charms, and to an *European* they can communicate none but sensual pleasure. Divested of all artificial disguises, those who are unmarried, appear, in their natural dispositions, wanton and amorous. Their women, however, when old, become very disagreeable : by early cohabitation, child-bearing, and want of cloaths to preserve their shapes, when advanced in years their bellies become large and wrinkled, and their breasts long and depending. They wear no cloaths for the sake of warmth, which, in this climate, are unnecessary : modesty, however, has taught

taught them to cover those nudities which *Europeans* are most studious to conceal. This the men do by a strip of linen or cotton cloth, either blue or white, passed between their thighs, and fastened, before and behind, to a string, which goes round the waist. This is called a lap, and is the ordinary covering of the Negroes also. The women weave a covering from small glass beads, of different colours, strung on threads of cotton, and so disposed, that, when woven, they form different figures by their different colours. This covering is as large as the two palms of a man's hands, and almost square, except that the upper angle is narrower than the lower. This is fastened before by strings of beads tied round the waist, and hangs before those parts which it is intended to conceal. Before the *Europeans* visited these countries, the bark of trees,

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or the web-like covering of a coco-nut or palm-tree, disposed after the manner in which the *Indians* place their laps, were the only coverings worn, either by males or females.

Just above each ankle is a cotton garter knit round the leg, on which it is worn; and on festivals, and other merry occasions, they wear caps of feathers, which consist of a circular band, about two inches wide, woven from the fine thread-like splints of small Nibbees, of a size adapted to the head on which it is worn. In the upper edge of this is fixed a great number of long feathers, of different, but gay colours, which stand erect round the whole circumference of the head. They likewise stick a great number of small fine feathers, of different colours, on different parts of the body, by the help of
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the balsam called *Arrecocerra*. On these occasions likewise they are painted in the face, and on the arms, breast, &c. either with *Launa*, or *Arnotta*. The women are usually the painters, and delineate various figures, according to their different fancies. The women likewise wear long strings of small beads, of different colours, closely wound round their wrists, arms, ankles, and above the calves of their legs.

In temper and disposition they are cheerful, humane, and friendly, but somewhat timid, or cowardly, except when drunk, which is not unfrequent, as all the *Aborigines* of *America* seem to have a natural propensity to intemperance; nor can the women be excepted, tho' no vice, not even immodesty itself, is more incompatible with the softness and delicacy of female charms. But

their happiness would be too perfect, unalloyed by this vice, which is the source of all their quarrels, and of all their crimes. Their language is distinct and harmonious, and but little dissimilar from the *Italian* in softness and multiplicity of vowels ; it is, however, narrow and confined, like their ideas.

They live in a family society, scattered in different parts of the country ; but their habitations are usually contiguous either to the sides of rivers, or of creeks communicating with rivers. Their houses are made by cutting four forked sticks, of different lengths, which they place in the earth in four angles, the two longest in front ; within the forks of these sticks are laid four poles, which are afterwards covered with several others, laid in a lateral direction ; over these are placed the leaves of
Troolies,

Troolies, before described, which are tied to the poles by split Nibbees. A house thus built is the work of a few hours only, and when finished affords a shelter sufficient to defend its inhabitants from rain and dew, the only purpose for which a house in this climate is useful ; and as their life is ambulatory, and they are unattached to any particular spot of earth, it would be a profusion of unnecessary toil to erect a more capacious or durable mansion. Under this shelter may be seen all their domestic furniture, their personal ornaments, and their arms. But how small the inventory of these particulars ! happily they are not encumbered with unnecessary conveniencies ; and whenever they travel, which is usually by water, in small canoes, they transport, without difficulty, all their terrestrial possessions.

Their usual ornaments and domestic utensils are two or three small pots, which the mother of each family usually makes from clay, which are afterwards baked over the fire, and then stained with the juice of some particular herbs, which render them black. They have commonly a neck towards the top, for the convenience of holding them. They will last a considerable time, with proper care, and are often used by the Whites as well as *Indians*. Also a large jar, for making a drink called *Piworree*. The jar is made from the same materials as the pots. The *Piworree* is made from the bread of *Cassava*, or *Manioc*, fermented with water. To promote the fermentation, the females usually chew a part of the bread, and mix it with water, and when it begins to ferment they add the remainder. When the fermentation is

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completed, the liquor is decanted from the subsiding bread, and drank. It is inebriating, and has somewhat the taste of ale, tho' less agreeable. I have often yielded to their importunity, and drank it at their houses, to avoid giving offence, tho' I would willingly have dispensed with their hospitality in this particular.—A flat stone, on which they bake their bread; and a rough cragged stone, on which they grate the roots of *Cassava* for bread: Several shells of gourds and calabashes, of different sizes; some are small, and serve the purpose of spoons; others are large, and supply the place of bowls and dishes: A hammock for each person, either woven or knit, after the manner of net-work, from the threads of cotton, or the strings twisted from the bark of the Samee tree: A hatchet, and two or three knives. But before the *Europeans*

visited these countries, fire supplied the place of the former; and instead of the latter they used sharp stones: A small looking-glass, framed in paper, and a comb; but both these have been added to the number of their domestic utensils since their intercourse with the *Europeans*: To these may be added paint, either from the *Arnotta*, or *Launa*, and a gourd, with oil of *Caraba*, with which they daily smear their skins; a practice which is attended with several advantages; as the oil, by its great bitterness, defends them from the bites of Musquitoes, softens and lubricates the skin, which by being constantly exposed to the sun, would be otherwise dry and stiff, and also prevents excessive perspiration.

The celebrated *de Reaumur* has some years since demonstrated, that profuse
perspi-

perspiration impairs the longevity of all animals, by discharging not only the uselefs, but nutritious parts of the animal fluids ; and an excess of perspiration seems to be the true reason why the inhabitants of Hot Climates live a shorter term than those who inhabit the Temperate Zones : And we find, that the native inhabitants of almost all tropical countries have constantly used means to repress this profuse transpiration. The *Hottentot* uses grease and foot ; the *Indian* uses oil ; but both for the same purpose.

Their arms, besides musquets, of which they have but a few, are either large, heavy, sharp clubs, such as are used by the *Carribbees*, or arrows, poisoned or unpoisoned. The former are blown through hollow reeds by the force of the lungs, and the latter are shot by bows. Their bows are about
five

five feet in length, made from Wafceba, or some other heavy and elastic wood; and the strings are twisted from filk-grass. The arrows are about four feet in length, made from a straight unjointed cane about three feet long, into one end of which is inserted a piece of heavy wood, a foot in length, and somewhat smaller than the cane. This is done for the sake of giving the arrow due weight. This piece of wood at the end sometimes has a large globular head; but if the arrow is intended to kill, the wood is either formed into a sharp point, bearded with notches, or is armed with a steel point, according to the animal for which it is intended. The arrows used for shooting fish have three forked points of steel bearded, but the middle point is two inches longer than the other two. Before the *Europeans* visited these countries, the *Indians* used sharp,

sharp, tapering, rugged stones, to supply the place of steel points. At the other end of the arrow, close to the notch for the string, are placed, on opposite sides, two feathers, about six inches long, which serve to direct the flight of the arrow with greater certainty.

The Poison Arrows are made from splinters of the hard, solid, outer substance of the Cokarito tree, and are usually about twelve inches in length, and are somewhat larger than a coarse knitting needle. One end of the arrow is formed into a sharp point, and invenomed in the poison of Woorara; round the other end is wound a roll of cotton, adapted to the cavity of the reed through which the arrow is to be blown. The arrow, thus decked and armed for destruction, is inserted into a hollow straight reed, several feet in length, which being directed towards
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the object, the arrow is, by a single blast of air from the lungs, protruded through the cavity of the reed, and flies, with great swiftness and unerring certainty, the distance of thirty or forty yards, conveying speedy and inevitable death to the animal from which it draws blood. Blowing these arrows is the principal exercise of the *Indians* from their childhood ; and by long use and habitude they acquire a degree of dexterity and exactness at this exercise, which is inimitable by an *European*, and almost incredible.

Monfieur *de la Condamine* mentions a species of poisoned arrows used by the *Indians* inhabiting the shores of the River of *Amazons* *, which are fimilar

* Les Yamcos font fort adroits à faire de longs Sarbacanes, qui font l'arme de chaffe la plus ordinaire des Indiens. Ils y adjustent des petites flèches
des

to those used by the *Indians* on the coast of *Guiana* ; and the poison with which they are invenomed probably agrees in its principal ingredients with those which enter the composition of the poison of Woorara, which is so called from

des bois du palmier, qu'ils garnissent, au lieu de plume, d'un petit bourlet de coton, qui remplit exactement le vuide de tuyau. Ils le lancent, avec le souffle à 30 & 40 pas, & ne manquent presque jamais leur coup. Un instrument si simple supplée avantageusement, chez toutes ces nations, au défaut des armes à feu. Ils trempent la pointe de ces petites flèches, ainsi que celles de leurs arcs, dans un poison si actif, que quand il est recent, il tue en moins d'un minute l'animal à qui la flèche a tiré du sang. Quoique nous eussions des fusils, nous n'avons guère mangé sur la Riviere de gibier tué autrement, & souvent nous avons rencontré la pointe du trait sous la dent ; il n'y a à cela aucun danger ; ce venin n'agit que quand il est mêlé avec le sang. Alors il n'est pas moins mortel à l'homme, qu'aux autres animaux. Le contrepoison est le sel, & plus sûrement le sucre.—*And in another place*, Ce poison est un extrait, fait par le moyen de feu, des sucres de diverses plantes, & particulièrement de certains Lianes.

a Nibbee of that name, which is its principal ingredient. Mr. *de la Condamine* was, indeed, informed, that the poison of the *Ticunas* tribe, which was the most esteemed among the different nations of *Indians* near the River *Maranon*, was compounded from more than thirty different kinds of roots and herbs; whereas that of the *Accawau Indians*, who are here confessedly the most skilful in these lethiferous preparations, contains only five ingredients; though the other nations, particularly the *Arrowauks*, make several whimsical additions, among which are the teeth and livers of venomous snakes, and red pepper,

anes. On assure qu'il entre plus de trente sortes d'herbes ou de racines dans le venin fait chez les *Ticunas*, qui est celui dont j'ai fait l'épreuve, & qui est le plus estimé entre les diverses especes connues le long de la Rivière des Amazons.

Vide *Relation abrégée d'un Voyage fait dans l'intérieur de l'Amerique Meridional, &c.*

which

which last may perhaps serve to augment its activity. The *Worrows* likewise add several frivolous articles, probably in obedience to the instructions of their ancestors, to which they superstitiously adhere. But the ignorant are ever fond of amassing a farrago of ingredients in composition, absurdly expecting thereby to obtain the end desired with more certainty; and the superfluous articles, added by the *Arrowwauks* to the *Indian* poison, are not more whimsical than many ingredients which once entered the hotch-potch officinal compositions of pharmacy.

The following is the recipe by which the *Accawau* Arrow Poison is usually prepared, and which I have procured from several of their *Peii's*, or physicians, at different times, who all exactly agreed in the number and identity of the ingredients, but with some variation in
their

their quantities, which, indeed, they have no method of either expressing or ascertaining with exactness.

Take of the Bark of the Root of
Woorara, six parts ;

Of the Bark of Warracobba coura,
two parts ;

Of the Bark of the Roots of Coura-
napi, Baketi, and Hatchybaly,
of each one part :

All these are to be finely scraped, and put into an *Indian* pot, and covered with water. The pot is then to be placed over a slow fire, that the water may simmer for a quarter of an hour ; after which the juice is to be expressed from the Bark by the hands, taking care that the skin is unbroken : this being done, the Bark is to be thrown away, and the juice evaporated over a moderate fire to the consistence of tar, when it is to be removed, and flat pieces of
the

the wood of Cokarito are dipped therein, to which the poison, when cold, adheres, appearing like a gum of a brown reddish colour. The pieces of wood are then put into large hollow canes, closed at the ends with skins, and in this manner the poison is preserved until it is wanted to invenom the point of an arrow, at which time it is either dissolved in water, and the points of arrows dipped in the solution ; or the wood to which it adheres is held over the fire until it melts, and the points of arrows are then smeared with it. The smallest quantity of this poison, conveyed by a wound into the red blood-vessels of an animal, causes it to expire in less than a minute, without much apparent pain or uneasiness ; though slight convulsions are sometimes seen near the instant of expiration.

Mr. *Herissant* declares *, that he was told by Mr. *de la Condamine*, that the *Indians* committed the care of boiling the Arrow-poison to a criminal woman, and that the time of her death was an indication of its being sufficiently boiled. But in this particular Mr. *de la Condamine* was, doubtless, imposed upon, as it has all the air of a fable, and as the *Indians* here evaporate it in open air, without the least danger, till it acquires a due consistence, which is all that is proposed, and is easily discovered, without the death of an old woman. The symptoms which Mr. *Herissant* perceived, might indeed happen by hard boiling, which the *Indians* avoid, and in a small closet, where the steam, raised by an unnecessary degree of heat, was confined, and received into the lungs.

* Vide *Philosophical Transactions*, vol. *xlvi*. pag. 75.

The Poison, when thus inspissated, is liquifiable by heat, and dissoluble in water, in alcohol, in spirit of sea-salt, and in a volatile alkaline spirit, as also in blood, saliva, &c. except only a very small part, which subsides both in a spirituous and aqueous menstruum, and probably consists of earthy particles foreign to the composition. It unites with acids without emotion, or change of colour. On mixing it with alkalies no ebullition is perceptible, but the colour changes from a reddish brown to a yellowish brown. A few grains, mixed with as many ounces of human blood, warm from the veins, intirely prevents a separation of serum and crassamentum, and the whole mass continues united in a state of fluidity, similar to that in which it is drawn, until after some days it putrifies.

Don *Ulloa* *, speaking of the *Indian* Arrow-poison, attributes to it a frigid quality, and says it kills by coagulating the blood. How he came by the knowledge of these particulars, I am uncertain; but *De la Condamine* nowhere mentions them; nor did any signs of coagulation ever appear in the fluids of those animals which have been killed in *Europe*, with the Poison of *Lamas* and *Ticunas* †. But if what *Ulloa* says be true, the Poison of the *Peruvian* and *Amazonian Indians* must be different from that of the *Indians* on the Coast of *Guiana*, since the latter rather dissolves than coagulates the blood, as I have

* Vide *Relacion historica del Viage al America Meridional, &c.* par Don Jorga Juan & Don Antonio *Ulloa*, &c.

† See in the *Philosophical Transactions*, vol. *xlvi.* p. 75. Experiments made on a great number of living animals with these Poisons, by Mr. *Herissant*, M. D. and F. R. S.

discovered by repeated experiments; and that it is not frigorific, is evident not only from its taste, which is bitter, and extremely pungent and hot, but because the *Arrowauks* combine it with red pepper, which would destroy its effects if they depended on a frigorific quality: besides, it excites inflammations externally, as I once unluckily experienced, when stirring a parcel of human blood, poisoned therewith, a drop accidentally fell into my left eye; and tho' I immediately plunged my head into the River *Demerary*, by the side of which I was standing, it nevertheless excited a painful inflammation, which continued for several days. This accident, however, I am sensible is not alone conclusive; but the particulars before cited sufficiently prove the Poison of *Woorara* has not the qualities mentioned by *Ulloa*, who probably was ac-

U 3 quainted

quainted only with the Poison of *Lamas**, as it does not appear that he ever visited the River of the *Amazons*; but as neither this, nor the *Amazonian* Poison, after repeated experiments, have betrayed those qualities he ascribes to them, it appears probable, that, for want of a more perfect knowledge of the action of Poisons in general, he might have imagined that the effects of the Arrow-poison could only result from refrigeration and coagulation, and therefore endowed them with these qualities, on the strength of conjecture.

I ought to have before informed you, that the several ingredients mentioned in the Recipe for compounding the *Ac-*

* The Poison of *Lamas* takes its name from a tribe of *Indians* of that name in *Peru*. It is less active than that of *Ticunas*; but the most fatal effects are said to result from a mixture of both.

cawau Poison, are all Nibbees of different kinds; but whether all, or indeed any more of them than the *Woorara* are necessary, or whether the efficacy of the Poison might not be farther improved, I am uncertain: It is, however, already too fatal to be trusted in the hands of any people, but those who are in a state of nature, in which criminal passions are feeble and languid. How the instantaneous fatal effects of this Poison can result from so small a portion as may be supposed to be left by the point of an arrow immediately extracted, is inexplicable: That it has the power of dissolving the fluids, is certain; but I am far from thinking that its fatal effects are produced by any such dissolution. The *Indians* constantly moisten the points of their Poison-arrows, when over dry, with the juice of lemons, which tends to produce an opposite effect; and blood drawn from

the jugular veins and carotid arteries of animals, at the instant of their expiration by the effects of this Poison, affords no uncommon appearance, and, after standing, regularly separates into serum and crassamentum, with a greater degree of cohesion than is usually observed in scorbutic cases; but yet the animals expired as it were by an insensible extinction of the vital flame. Can such instantaneous fatality result from any change in the texture of the fluids, in so short a space? I doubt whether they are susceptible of it: nor do I believe that these sudden deleterious effects can arise, except from an immediate injury offered to the sensible nervous system, or the source of the vital functions. Mr. *Herissant* thinks it contracts the vessels*, but says it does not usually

* Since these Sheets went to the Press, I have made several Experiments with this Poison on diseased and emaciated animals, having but a small
portion

alter the appearance of the fluids, tho' he once or twice observed the blood to assume a brownish colour.

Against this Poison there is no certain antidote discovered; and its effects are so sudden, that I doubt whether any thing taken by the alimentary passage can act with sufficient celerity to preserve life. *M. de la Condamine*, indeed, says, that Salt; but Sugar, more certainly, is an antidote for the *Amazonian* Poison: and Sugar, or rather, the Juice of Canes, is commonly thought, by the White Inhabitants of this Colony, to prevent the effects of the *Ac-*

portion of blood; and have found its effects much more slow than on the more healthy and vigorous. This seems to countenance the opinion of *Mr. Herissant*, that the fatality of this Poison results from a contraction of the vascular system, by which the capacity of the vessels is so far diminished as to obstruct the circulation of the fluids. But nothing certain can yet be determined on this subject.

carwan

cawau Poison : But the *Indians* themselves do not acknowledge this quality in the Cane ; and I have never been able, either by my own experiments, or enquiries, to discover a single instance of its efficacy for that purpose. That Gentleman * instances an experiment made on a fowl, at *Cayenne*, which was wounded with one of the Poison-arrows in presence of the Commandant, &c. and which, after being dosed with Sugar, betrayed no signs of indisposition : But the Sugar had not this effect at a subsequent experiment, made at *Leyden*, in presence of several of the Medical Professors in that University ; tho' the activity of the Poison was then confessedly impaired by the Winter : Nor did the Sugar prove an antidote at the experiments repeated by Mr. *Herissant*, or at an experiment made by Dr. *Brock-*

* Vide *Relation abregée*, &c.

lesby *. Mr. *Herissant*, however, declares, that an actual cautery immediately applied to the poisoned wound, prevents its effects.

I have long imagined, from the distant affinity between the effects of this Poison, and those of some Pestilential and Malignant Fevers, that an Antidote for the former would be useful in the latter, and therefore have spent some time in fruitless endeavours for the discovery of one. Acids or Alcalies, as such, do not seem either to promote or retard its effects ; and it is but seldom that either Animal or Vegetable Poisons derive their deleterious properties from either of these principles ; nor is

* See his Letter to the President of the Royal Society, concerning the *Indian Poison* sent over from Mr. *de la Condamine*, Member of the Royal Academy of Sciences at *Paris* ; *Philosophical Transactions*, vol. xlv. part ii. p. 408.

the doctrine of Acids or Alcalies pertinent, except to Saline or Fossil Poisons*.

That this Poison may duely operate, it is necessary that it should be externally admitted into the sanguine vessels†; because when received by the alimentary passage it is subdued by the action of the digestive organs, or ex-

* As the Author has brought a considerable quantity of this Poison to *England*, any Gentleman, whose genius may incline him to prosecute these experiments, and whose character will warrant us to confide in his hands a preparation, capable of perpetrating the most secret and fatal villainy, may be supplied with a sufficient quantity of the *Woorara*, by applying to Mr. *Becket*, in the *Strand*.

† That a portion of this Poison, brought into contact with a ferous vessel, should not produce the same effect as when immediately received into a sanguiferous vein, can only be accounted for, by supposing that its contracting quality so far diminishes the capacity of the vessel as to exclude its own admission.

cluded

cluded from the channel of circulation by the lacteals *. When swallowed by animals, in large quantities, it is usually ejected by the mouth. Dr. *Brocklesby*, indeed, declares, that in giving a watery solution of the *Amazonian* Poison internally to a bird, it became convulsed, and died when two drops had scarcely touched its tongue, tho' it had just before been dosed with Sugar. This is an experiment which contradicts

* The Author of our being, by wisely ordering the mechanism of our bodies so that nothing can be received into the sanguiferous vessels except through the minute passages and strainers of the lacteal and lymphatic vessels, and their glands, has happily preserved us from innumerable disorders, to which we should be otherwise incessantly exposed. Olive oil, so harmless when either swallowed, or smeared over the body, if injected immediately into the blood vessels, produces death. And thus the Poison of *Woorara*, taken internally, or applied externally, is harmless, tho' nothing can be more fatal when conveyed into the veins or arteries.

every

every other observation of Messrs *de la Condamine* and *Herissant*, as well as the constant practice of the *Amazonian Indians*, in eating the flesh of animals killed by this Poison ; a practice, in which they are imitated by the *Indians of Guiana*, who frequently taste the Poison of *Woorara*, as I have myself several times done, without detriment. But as the veracity of Dr. *Brocklesby* is unquestionable, it is necessary to suppose, that the skin of the bird's tongue, or mouth, was, by some accident, broken, which was probably the case. If the cuticle is unbroken, this Poison, dissolved, may be smeared over the whole body, without danger ; and I have often, in making experiments, found not only my hands, but arms, wet with a watery solution of the *Woorara*, which is susceptible of a violent effervescence with the heat of the sun only, and which I have suffered to dry upon the skin with
 impu-

impunity. In this case life depends upon a whole skin.

When only a lymphatic vessel is wounded by one of these poisoned Arrows, a febrile inflammation ensues: Of this I once saw an example in an *Indian*, belonging to the Plantation of *Isaac Knot*, Esq; a Member of the Council, and Senior Captain of the Burghers of *Demerary*, with whom I then resided, and which was the only instance in which I had ever an opportunity of observing the action of this Poison on any of the Human Species. This *Indian* had, by accident, slightly pricked the fore-finger of his left-hand with the point of a poisoned arrow, but as no blood ensued, he had apprehended no danger; but finding that the wound soon after became painful, and the hand considerably swelled, he came to me for assistance. I was at that time
wholly

wholly unacquainted with this Poison, and therefore called for an *Indian* Peii, of the *Arrowauk* tribe, who was near, and inquired, by an interpreter, if he knew of any remedy? He replied in the negative; but added, that the *Indian* would not die, as no blood had appeared from the prick, which was scarce perceptible. The effects of the Poison, however, soon became more violent, and not only the hand but whole arm was tumified, attended with a quick, hard, throbbing pulse, great febrile heat, quick respiration, and thirst, together with an inflammation and tumefaction of the lymphatic subaxillary glands*.

* This is a circumstance which tends to confirm what the celebrated Dr. *Hunter* seems to have incontestibly demonstrated, in his *Anatomical Lectures*, that the lymphatic and lacteal vessels uniting into one common canal, called the Thoracic Duct, form a distinct absorbing system of vessels, the only canals by which any thing can be received into the channel of circulation, unless the blood-vessels
suffer

At this time he was bled, and his arm embrocated with olive oil and vinegar; several antiphlogistic remedies were likewise given internally, which it would

suffer a previous rupture, and thereby afford an unnatural admission into their cavities. That the lymphatics are the only natural absorbents, is, among other still stronger proofs, evident from this observation, that all Poisons which apparently affect the solids, act first solely on the lymphatic vessels, or their glands; whilst the venal ducts, which have been hitherto supposed to absorb, remain uninjured. Thus the venereal poison, when received by coition, affects the inguinal glands, through which the lymphatics from the *penis* pass, and generates buboes. If it is received by the breast, it acts on the subaxillary glands, with which the mammary lymphatics communicate, &c. And in the present instance, we find the Poison of *Woorara* producing a tumefaction and inflammation of the same glands, to which it was conveyed by the lymphatic vessels from the finger, and in which it was arrested. Thus the Poison was refused a passage into the sanguiferous vessels by the lymphatic glands, which are wisely disposed so as to obstruct the entrance of almost every thing detrimental to health.

be useless to particularize, as I am uncertain whether they were of any service. In about twelve hours the violence of the symptoms was apparently decreased, and the next morning they almost entirely disappeared.

These arrows are used in hunting, but particularly for killing monkeys, who, when wounded with unpoisoned arrows, usually run to the crotch of a tree, from whence they do not fall, even when dead; whereas, when pricked with a poison arrow, their limbs become useless, and they fall to the ground. But I do not find, that even in their wars, which are seldom, they ever attack any of the human species with poisoned arrows; and yet it may be wondered that a people, living under no laws, actuated by no religious principles, and unrestrained by the fear of either present or future punishments,
and

and having at their disposal so fatal a poison, should not sometimes exercise it for the gratification of hatred, jealousy, and revenge; but these passions are languid in a state of nature, where, though there are fewer restraints, there are also fewer temptations to vice; and the different tribes are, doubtless, sensible, that the detriment which they should mutually sustain, from the use of poisoned arrows in their wars, would far overbalance any advantage which could result therefrom. Much, however, is to be attributed to that friendly and hospitable disposition by which they are happily distinguished from the more Northern *Indians*, being intirely destitute of that ferocity which characterises the *Indians* contiguous to our Continental *American* Colonies, and which prompts them to commit such horrid ravages on their interior defenceless inhabitants.

The Religious Sentiments of all the known tribes in *Dutch Guiana* are nearly similar. They all firmly believe the existence of one supreme God, the Author of all Nature. But the foundation of this belief depends not on contemplating the effects of that wisdom and power, which has disposed the innumerable orbs of the universe with such harmony, that millions of worlds revolve round millions without impediment to each other; nor on the order, beauty, and regularity which is apparent in every part of this our material system; but on the deformities and convulsions of Nature, which, to a philosopher, tend to create scepticism and infidelity. The *Indian*, however, sees unquestionable evidences of a Deity in earthquakes, prodigies, thunder-storms, and tempests.

The

The principal attribute with which these tribes endow the Deity is benevolence; and though they impute the good, yet they attribute none of the ills of life to him. Good and evil they think so essentially different, so incompatible with each other, that they can never flow from the same source; and have therefore instituted an order of subordinate malevolent beings, corresponding to our commonly received ideas of Devils, who delight in, and are permitted to inflict, miseries on mankind. To them are attributed all the misfortunes and afflictions of life. Death, diseases, wounds, bruises and all the unlucky accidents of life, are supposed to result immediately from the malign influence of these beings, who are called *Rowahoo's* by the *Indians*, who think that they are constantly employed in concerting measures for afflicting them. To these *Rowahoo's*, therefore, they di-

their supplications, and in affliction use various endeavours to avert, or appease, their malevolence ; while the adoration of the supreme Deity is intirely neglected.

In almost every family there is a person consecrated to this service, who unites in himself the sacerdotal and medical characters. These are called Peii's, or Symmeties, and are believed, by the laity, to have a particular influence with these *Rowahoo's*, not only for averting their displeasure from particular objects, but in drawing down their vengeance upon such persons as they please: a belief, which these Peii's incessantly cultivate, from self-interested principles, which have ever been found inherent in all orders of men, whether in a state of nature or of civilization. When, therefore, a person is sick, or wounded, application is immediately made to a Symmetie,

metie, who at night visits his patient, with all the implements necessary to exercise his several functions. Of these the principal one is a large calabash, freed from its seeds and internal spongy substance, in which there is a variety of small circular, as well as of long, narrow holes, made in different parts of the shell, which is likewise painted with various colours. Within the shell are put several small white stones, which are a species of agates, and on this account are held in superstitious veneration by the laity among the *Indians*, who durst not even touch them; to these are added a great number of small pea-like seeds, variegated with black and yellow spots, which, as is commonly believed by the *Indians*, will occasion the teeth to fall out if they are chewed. A long round piece of wood is then run through the middle of the shell, from end to end, by means of two holes properly

made, so that each end of the stick extends about a foot beyond the calabash; the largest end affords a handle, and the other is ornamented with a long string of beautiful feathers, of various colours, wound on the stick in spiral circles.

With this *magical shell* the Peii begins his nocturnal exorcism, about ten o'clock in the evening, having first darkened the room, and made every one quit it except his patient; he then rattles his shell, by turning it slowly, in a circular motion, at the same time singing a supplication to the *Yowahoo*, which, as well as the motion of the shell, is incessantly repeated until midnight, when the Peii pretends to have an interview with the *Yowahoo*; and at that time two apparently distinct voices may be always overheard, by any person who has the curiosity to listen, unless it happens to rain at that time, when the Peii immediately

diately postpones his incantation to the next evening. What passes at these interviews is unintelligible even to the *Indian* laity themselves; but the Peii makes a report conformable to his conjectures concerning the event of his patient's disorder; tho' usually in an ambiguous or doubtful stile.

There are many of the White Inhabitants, who have long resided in this Colony, that believe the reality of these interviews; nor will they be persuaded that the voice, which is attributed to the *Yowahoo*, and which seems to come from the woods, can possibly be made by the Peii.

This ceremony has some analogy to the *Pawwaws* of the *North American Indians*; and indeed all the different tribes on the continent pretend to an intercourse with evil spirits; but the Peii's
carry

carry their diffimulation so far, that they act the farce on themselves when they are disordered; a practice, which has not a little contributed to overthrow all doubts of the sincerity of their pretensions.

These exorcisms are usually repeated every night, during the increase of the patient's indisposition; but after a favourable change, or crisis, has happened to the disease, the Peii pretends to extract the cause of the disorder, by sucking the part which has been most painful, or most affected, and then pulls out of his mouth either fish-bones, thorns, snakes teeth, or some such substance, which he has before concealed therein, but which he pretends were maliciously conveyed into the affected part by the *Yowa-hoo*. The patient then imagines himself cured, and the influence of imagination not a little accelerates his recovery. During this time, however, they do
not

not neglect the use of those few remedies, whose properties have been discovered rather by chance than design, and which they have observed to produce good effects in cases apparently similar, without knowing, or pretending to know, the manner of their operation. And it is from this simple origin, that the science of medicine, divested from its modern improvements, derived its existence.

“Diligentes homines hæc notasse, quæ
 “plerumque melius responderent; deinde
 “ægrotantibus ea præcipere, cæpisse;
 “sic medicinam ortam: subinde alio-
 “rum salute, aliorum interitu, perni-
 “ciosa discernentem a salutaribus *.”

But if the combined power of exorcism and medicine is insufficient to preserve life, the Peii attributes the patient's death either to the implacable inveteracy of the *Rowahoo*, or to the influence

* *Celsus, præfat. lib. i. p. 9.*

of some other Peii, whom the patient has unhappily made his enemy, and who has counteracted all his endeavours for his recovery. After the patient's death, the calabash, which has been unsuccessfully used, is buried, and a new one made to supply its place.

The order of Peii's is hereditary, and is conferred only on the eldest son of a Peii, who is initiated into the mysteries of his Peiiship with much private, but superstitious ceremony, continued for several weeks; and, among other whimsical ceremonies practised on this occasion, he is dosed with the juice of Tobacco, till it no longer operates as an emetic: Tobacco being esteemed a sacred plant among all the *Aborigines* of *America*.

The day after the *Indian's* death, he is buried naked, by an assemblage of his relations, friends, and acquaintance, who,

who, when the ceremony is over, drown their sorrow in a drunken feast, in which their Piworree is freely dispensed; this, with another drink, which is but little different, and is called Beltera, being the only fermented liquors known to these *Indians* before the *Europeans* transplanted themselves hither. These occasions present a ludicrous spectacle of crying, singing, riot, and drunkenness; the old women are particularly noisy and petulant, and distinguish themselves by singing loud songs in praise of the person deceased; and the whole is a confused scene of mirth and sorrow, ridiculously combined in the same object. After the body has lain in the earth for several months, and the flesh is supposed to be perfectly rotten, the grave is opened, and the bones taken out and distributed among the relations, on which occasion the same ludicrous scene of riot and sorrow is again re-acted.

Though

Though individuals in the different tribes of *Indians* live in amity, and exercise the rules of hospitality towards each other, yet they have no Chief, are neither restrained nor protected by any laws, but an injury, when offered, is either revenged or forgiven, according to the disposition of the injured person. But happily injuries are unfrequent, as they ever must be, in a state where luxury and inequality are unknown; where the inhabitants have no wants but what are easily supplied; where every blessing of nature is the common undivided property of all; and where, of consequence, there can be no temptations to dishonesty and injustice. An injury committed in such a state must be either the effect of drunkenness or wantonness; and it is universally observed, that all their quarrels arise from intemperance only.

In

In this state, the father restrains his children by parental authority, until they arrive at an age of maturity, in which reason is sufficient to withstand the feeble temptations to which they are exposed. At this time they marry; and though polygamy is universally allowed, it is not often practised; and an *Indian* is rarely seen to be the husband of more than one wife, unless the former is become old and disagreeable. In this case the husband takes a second, at the age of seven or eight years, who lives and subserves the former in all domestic employments until the term of puberty, which, in this climate, is usually between ten and eleven years, at which time she cohabits with the husband. The ceremony of marriage is nothing more than a drunken feast. But notwithstanding they have no religious restraints to conjugal fidelity, yet adultery is less frequent than among civilized

vilized nations, where too many at the altar, in the most solemn manner, impiously enter into engagements, without intending to fulfil them ; a crime so common, that its frequency is absurdly urged as an excuse for its commission. But with the *Indians*, Nature is their only law to love, and constancy is Nature's dictate. This, however, is the case only with those who live at a distance from, and are uncorrupted by, the *Europeans* ; those *Indians*, who have a nearer and more constant intercourse with the Whites, being encouraged in their natural propensity to intemperance, that the debauchery of their wives may be effected with more facility. There is no injury, however, of which the *Indians* are more sensible, or which they oftener revenge ; but this they never attempt on the Whites, for whom they have no small veneration. But though chastity after marriage

marriage is required, it is far from being deemed necessary even in the females before that ceremony ; not that the husband, like those of an *Oriental* nation, is displeased at being put off with a virgin ; but it seems a matter of perfect indifference.

After marriage, a house, with its furniture, such as I have already described, is provided for the new married couple, contiguous to that of the father's ; and as the men find themselves stronger than the women, they claim a superiority, which, in spite of love, they exercise over their wives, who not only subserve them in all domestic offices, but even in agriculture, after the men have first cleared the ground from its trees. Here the women plant Cassava, Plantins, and Yams, sufficient for making of bread and Piworree, these three being almost the only vegetables which they use,

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that are not the spontaneous productions of Nature ; and in this climate, one month's labour annually is amply sufficient for the cultivation of these productions.

An appetite for animal food, and the facility of acquiring it in this country, has rendered the men all hunters ; and indeed hunting is almost their only employment. Whenever their meat is at an end, the husband takes his arrows, and goes in quest of game. If he is unsuccessful in his search after Deer, Labba's, &c. he sits down by a tree, and imitates the cry of a *Puccarara*, or *Indian* Coney ; and as they are very numerous, several of them soon appear, of which he shoots as many as he wants, and returns home, where he continues till hunger reminds him that his meat is gone. If he has an appetite for fish, he goes to a small creek, emptying into
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a river. These are usually kept fenced at the mouth, leaving only a small opening, three or four feet in width, through which the fish enter with the tide of flood in quest of food. This opening the *Indian* stops, at the point of high water, with a fence made from sticks, tied together so close, that the fish cannot escape through them. Many of these creeks are empty at low water, and the fish are found lying on the mud. When this is not the case, the fish are intoxicated, by throwing into it a bruised root of Hiarra, at the point of low water, and the fish soon float motionless on the surface of the water, and are then taken.

Their usual method of cooking all animal food, is by boiling it either with water, or the juice of Poison Cassava, to which they add such a quantity of Red Pepper, as would instantly excoriate the

mouth of a person unaccustomed to its use, which is indispensibly necessary in this climate, to corroborate the solids, and promote digestion, which would otherwise be imperfect; though it is a general but mistaken opinion, that the copious use of spices is detrimental to the inhabitants of hot climates; whereas nothing is more productive of health; and we find that Nature has not only produced them more particularly in these climates, but taught the inhabitants their use; and not only the *Indians* of *America* between the Tropics, but the inhabitants of *Africa* and the *East*, all season their food with a great quantity of Spices, particularly Pepper; a practice in which they are likewise imitated, in a greater or less degree, by all the *Europeans* who have resided in these countries long enough to acquire the knowledge of its use. By this practice the *Indians* wholly preserve themselves from those

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Intermitting Fevers which are endemial to the other inhabitants of *Guiana*, who do not imitate them therein. But tho' the *Indians* live in the excessive use of Pepper, they are never afflicted with the Gout, notwithstanding the humidity of the air renders it particularly troublesome to those of the White Inhabitants, who have transported it from *Europe*; and I think that Spices ought to be no longer enumerated among the prædisposing causes of that disorder. The *Indians*, however, use but little Salt with their food, and until the *Europeans* visited them, they had none, except what they sometimes procured by boiling seawater in their small clay pots; but the far inland inhabitants scarce ever saw any in their lives. The *Indians* have no set time of eating except at evening, when they return from hunting; at other times they eat whenever they are stimulated by hunger.

I forgot to inform you, that the Peii's religiously abstain from the flesh of oxen, sheep, and all other animals that have been transplanted from *Europe*, and are unnatural to *America*.

The *Indians* drink Piworree with their food, when they have it, but their indolent improvidence often renders them destitute of it; in which case water supplies its place. In this climate, however, and with their natural propensity to intemperance, their improvidence is a blessing, as they would otherwise be intoxicated the greatest part of their lives. Their unconcern for futurity, however, is by no means singular or unnatural, improvidence being the universal characteristic of all uncivilized nations. To forego present ease for future advantage, to neglect an immediate for a distant enjoyment, can only be suggested by cultivated reason.

As

As the *Indians* have but little, and often no Salt, whenever they have a greater quantity of animal food than is required for present use, they preserve it after the manner of the *Darien Indians*, by drying and smoaking it over a small fire; and when the succulency is, by that means, dissipated, it may be kept for many months without danger of putrefaction.

The simplicity of the lives of these people, the paucity of their wants, and the ease with which they are supplied, in a country so happily situated, and so liberally endowed with the necessities of life, leaves the greater part of their time unoccupied with the cares of procuring sustenance, in which they have ample leisure to pursue the various modes of amusement and pleasure, which are most agreeable to their simple, rustic inclinations: A part of these idle hours

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they pass in bathing and swimming in the rivers, which they do in companies, without distinction of sex, several times a day; and they are so constant and expert at swimming, that they almost deserve to be classed with amphibious animals; this they find not only an agreeable but salubrious exercise, as it tends to repress excessive perspiration, and preserve health: At other times they visit each other, and are mutually entertained, not only with the simple occurrences of their lives, but with a variety of fables, which are merry, significant, and replete with such simple morality, as their confined observations and uncultivated minds have suggested. On these occasions they often abandon themselves to puerile mirth, dancing, or immoderate laughter; but harmony and good-humour ever prevail, until they are intoxicated by drink. But the greatest part of their leisure hours are idly passed in their hammocks,

hammocks, in which they not only sleep, but eat, converse, play, blow a kind of rough clumsy flutes, eradicate their beards, or view themselves in glasses, and admire their features, for they are not untinged with vanity.

Their indolence seems to be constitutional, produced by the warmth and humidity of the atmosphere, which conspire to relax and debilitate the inhabitants, and render them less vigorous and active than those of colder climates. But if they have less ability or disposition for labour, they also find it less necessary than in other climates; as the same heat and moisture which thus enervates the body, generates an exuberant fertility of soil, a speedy luxuriant vegetation, and a multiplicity of spontaneous animal and vegetable productions; which, with the absence of winter, and other peculiar advantages, amply compensate for this debility.

bility. It is thus that almost every ill is, in some degree, alleviated by an attendant advantage.

Though the *Indians* are but little acquainted with midwifery, Nature has happily rendered it unnecessary, as a difficult or painful birth is scarce ever known, nothing more being necessary than to receive the infant when it spontaneously presents itself, and divide the umbilic vessels, which they do with a brand of fire, which cauterizes their orifices, and renders a ligature unnecessary. On these occasions the women suffer so little, that they seem to have been exempted from the sentence of bringing forth in sorrow, which was pronounced on *Eve*, and is inflicted on all the females of civilized countries. The mother and new born infant, when delivered, are carried, and plunged into the water, and the next day the former resumes

resumes the discharge of her domestic employments.

Children here are scarce ever born with natural imperfections; it is very uncommon to see an *Indian* either lame or deformed. The children, instead of being oppressed with excess of care and indulgence, pass a state of infancy without receiving much attention or assistance from the parents, except food only: but this neglect is far from proving detrimental, and they much sooner acquire strength and self-sufficiency. “*Mollis illa educatio, quam indulgentiam vocamus, nervos omnes et mentis et corporis friget**.” The males, as they grow towards manhood, attend the father in hunting; and by habitude and experience acquire a degree of sagacity and expertness at this exercise,

* *Quintil. lib. i. cap. 3.*

by which all the *Indians* are distinguished. The females, at the same time, are devoted to the service and assistance of the mother, in her several employments.

As the *Indians* are intirely ignorant of Letters, they are unable to comprehend the manner in which they observe the knowledge of things communicated by their assistance ; and books they behold with superstitious veneration, as instruments by which the knowledge of past and future secrets are discovered. They seem to have some notion of a future state ; but their ideas on this particular are so confused and doubtful, that they seem rather to hope than believe a future existence : but they seem by no means solicitous to satisfy themselves on this subject, there being an indolent tranquillity and inattention to futurity, which predominates
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not only in this, but every other particular; and their cares, instead of extending to a state of future existence, seldom reach beyond the present hour; nor, except in the single article of agriculture, do they ever make any provision for futurity; and though the labour required for cultivating a sufficient quantity of Cassava is so trifling, yet they often delay their cares on this particular, till they are not only destitute of Piworree, but even of bread, in which case they contentedly recur to the use of Siperá, or Green-heart-tree Apples.

This indolent neglect and unconcern, which, in a colder climate, would be productive of misery, in this occasions only present inconvenience, and constitutes in their dispositions a happy tranquillity, which is immutable either by want or abundance. When surrounded
with

with plenty, they are voracious and intemperate ; when their situation is the reverse, they abstemiously suffer the inconveniencies of want, without apparent desire or anxiety. If human happiness consists in contentment, these people must necessarily be, of all others, the most happy ; where they have no wants but what are easily supplied, and where all are in a state of perfect equality, in which the tortures of discontent, envy, ambition, and avarice cannot possibly exist.

As the *Indians* have no method of Computing Time, for any number of years, it is impossible to ascertain the length of their lives ; many of them, however, appear covered with wrinkles, and all other marks of old age, except baldness and grey hairs, from which they are all exempt, even in the most advanced age. They, however,
calculate

calculate the distance of events by intervening Moons, where their number does not exceed ten or twelve ; but after that they seldom remember their number with any exactness. Their method of Numeration is by units, tens, and scores, till they reach an hundred, after which they have no exact method of expressing the number of objects, but usually do it, by shewing such a quantity of hairs as they think has the nearest relation to the numbers of which they would convey an idea.

In all their traffic, either with each other or the *Europeans*, they estimate the value of things according to their present want ; and an *Indian* at one time shall require an ax, in exchange for that for which at another he will demand only a fish-hook, without regarding any disproportion between their value.

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The *Arrowauk Indians* never engage in any wars with their neighbours, nor even in the practice of making slaves from among the interior inhabitants, to which the *Dutch* have incited the *Carribbee* and *Accawau* tribes. Whether they are sensible, that hands were not given them to destroy each other ; or whether they are influenced by pusillanimity, I will not determine ; they have, however, maintained themselves in a state of perfect independence without wars. This is by no means difficult among uncivilized nations, if care is only taken not to injure or provoke them to revenge. An acquisition of useless territory, or of useless slaves, cannot possibly excite a people to war ; and it would be difficult to maintain a nation in subjection, who have so few wants ; and to attempt it, would be a certain trouble without any advantage. And we find that all barbarous nations
engage

engage in war from a spirit of revenge, rather than views of interest ; except only where they have an opportunity of selling those prisoners to others, which to themselves would be useless. Such an opportunity has indeed been furnished to the *Indians* of *Guiana*, since the *Dutch* have made settlements on this Coast ; but they have prevented its injuring the peaceable *Arrowauks*, by exempting them from the possibility of becoming slaves.

I N reviewing the Manners of these *Indians*, some few particulars excepted, I survey an amiable picture of primæval innocence and happiness ; which arises chiefly from the fewness of their wants, and their universal equality. The latter destroys all distinctions among them, except those of age and personal merit, and promotes the ease, harmony, and freedom of their mutual conversation

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and intercourse. This facilitates the happiness of the *Indian* Lover, who finds no obstacles to the fruition of his desires from inequality in rank or fortune, or from the views which ambition and interest inspire ; and this annihilates all envy and discontent. But the advantages resulting from the paucity and simplicity of their desires, contribute to their felicity in a more eminent degree. Man's real wants are but few, and those few not long ; though in civilized countries they have been multiplied by luxury and refinement to an excruciating excess.

Those who have been unhappily familiarized to all the various refinements of luxury and effeminacy which attend the Great, and whose deluded imaginations esteem them essential to happiness, will hardly believe that an *Indian*, without any other covering but
what

what modesty requires, with a shelter which cannot deserve the name of a house, and the few culinary and domestic utensils which I have already enumerated, without any other terrestrial possessions, and only the rustic food which is procured by hunting, dressed without variety, art, or delicacy, could form any pretensions to felicity ; and yet, if I may be allowed to judge from external appearances, the happiness of these people may be justly envied even by the wealthy of the most refined countries ; as their happy ignorance of those extravagant desires and endless pursuits, which agitate the great luxurious world, excludes every wish beyond their present enjoyments.

The fewness and simplicity of their wants, with the abundance of means for their supply, and the ease with which they are acquired, renders all di-

vision of property uselefs. Each amicably participates the ample blessings of an extensive country, without rivalling his neighbour, or interrupting his happiness. This renders all government and all laws unnecessary, as in such a state there can be no temptations to dishonesty, fraud, injustice, or violence, nor indeed any desires which may not be gratified with innocence ; and that chimerical proneness to vice, which, among civilized nations, is thought to be a natural propensity, has no existence in a State of Nature like this, where every one perfectly enjoys the blessings of his native freedom and independency, without any restraints or fears, but those of religion, which their Peii's have artfully created : To these, however, the inhabitants of all countries are, in a greater or less degree, subjected.

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To acquire the art of dispensing with all imaginary wants, and contenting ourselves with the real conveniencies of life, is the noblest exertion of reason, and a most useful acquisition, as it elevates the mind above the vicissitudes of fortune. Socrates justly observes, " That those who want least approach " nearest to the Gods, who want no- " thing." The simplicity, however, which is so apparent in the manners of these *Indians*, is not the effect of a philosophical self-denial, but of their ignorance of more refined enjoyments, which, however, produces effects equally happy with those which result from the most austere philosophy ; and their manners present an emblem of the fabled Elysian fields, where individuals need not the assistance of each other, but yet preserve a constant intercourse of love and friendship.

O fortunati nimium, bona si sua norint.

VIRG.

These *Indians* are indeed unlettered and ignorant, as are all those whose wants are few; the progress of arts and sciences having ever kept pace with luxury. Mankind seldom attend to objects, which are not connected with either their pleasures or necessities; and where curiosity is thus unexcited, reason will never undergo the trouble of investigating the properties and causes of objects, which, when discovered, could afford no entertainment: Where, therefore, the wants and desires of mankind are few, their enquiries, and consequently their knowledge, will be confined. This ignorance, however, is a vehicle of happiness to these *Indians*, as it would certainly render them miserable to be endowed with sentiments and desires above their capacity of enjoyment; and happy will it be, if they never emerge from their present state.

Several

Several moderns, celebrated in the literary world, from observing the innocence and happiness which savage nations enjoy, though ignorant of the liberal arts, have from thence inferred, that arts and sciences were prejudicial to civilized society, and have proceeded to charge them with all the ill effects resulting from luxury, which has ever been their companion, or rather their parent. In this, however, they have egregiously erred; as those things which, in a State of Nature, are useless, may be highly salutary in a State of Civilization; as arts and sciences are the surest antidote against the evils of luxury and refinement. The ills of civilized society have their source in the unnatural institution and unequal distribution of property, which is necessarily produced by the different degrees of sagacity, industry, and frugality in individuals, transmitted to, and aug-

mented by, an accumulating posterity, till the disproportion in the possessions of different individuals becomes enormous, and creates a thousand unnatural distinctions among mankind, enabling some to squander the bread of provinces in a profusion of satiating pleasures; while multitudes suffer by want, insulted by every species of subordinate tyranny, and oppressed by every law which gives others protection; while objects still more wretched, who are emaciated with the complicated evils of hunger and disease, unclothed even with rags, disclaimed by the world, and abandoned to the rigours of winter, penury, and despair, and whose miseries rather excite horror than compassion, daily shock humanity. Thus the excessive disproportion of wealth renders the poor miserable, without augmenting the happiness of the rich. When this disparity becomes considerable, then, and
not

not till then, luxury advances with all its attendant pleasures and refinements, which, without communicating an increase of happiness to those who enjoy them, tempt those who have them not to endeavour to acquire them by unjust and violent means. Mankind are then taught to connect the idea of happiness with those of dress, equipage, affluence, and all the various amusements which luxury has invented; thence they become the slaves of a thousand unnatural imaginary wants, which become the source of envy, discontent, fraud, injustice, perjury, and violence, by stimulating inordinate appetites, and creating unnatural temptations to vice, too powerful for the sway of reason; and thus mankind becomes the author of moral Evil.

We, in a state of civilization, universally complain of an inability to conform

form to the dictates of reason and virtue : an inability which has been unjustly charged to a natural propensity to vice, but which is the sole production of luxury, and unknown in a state of nature. Luxury, however, in generating immorality, likewise promotes the advancement of literature, which, by a variety of means, tends to repress and discountenance vice. A state in this situation, like a body corrupted by intemperance, requires to be supported by the continuation of corrupt means ; and luxury in the rich promotes industry and arts, and feeds and cloaths the labouring poor, who would otherwise starve. Thus by an unnatural perversion of things, the members of a corrupt state derive advantage not only from the follies, but vices of each other ; and the fabulous speech and confession of a dying malefactor prevents many from starving.

But

But every kind of life has its peculiar advantages as well as evils. The vices of civilized countries, though more numerous, are less terrible. Artificial wants extend the circle of our pleasures; and even luxury, by multiplying our desires, enlarges our capacity for happiness. Whether, therefore, we pass life in the rustic simplicity and ignorance of *Hottentot* Barbarism, or in the endless pleasures of Refinement and Luxury, we shall all arrive to the same end, and perhaps with an equal portion of happiness, as far as it depends on external enjoyments, abstracting only the miseries of real want and disease.

However various the conditions of mankind may be, the distribution of happiness and misery in life, is far from being so unequal as is generally believed: Good and evil are indiscriminately mingled in every cup; the Monarch

narch in his purple, and the Beggar in his rags, are exposed to their respective cares and afflictions. Agreeable objects, by possession and familiarity, lose their aptitude and capacity for pleasing ; and in every state of life, hope ends in disappointment, and enjoyment in satiety. From this conclusion justice, however, obliges me to except the happiness I once derived from your endearing society and conversation, unallayed by enjoyment ; and I can with truth assure you, that neither absence, nor distance of situation, will ever impair the esteem and devotion with which I most affectionately am,

Dear Brother,

Your, &c.

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LETTER IV.

Rio Demerary, Nov. 15, 1766.

Dear BROTHER,

FROM my preceding Letters you will be able to form an idea of the state of *Guiana* before the *European* Nations visited, and settled themselves on this Coast. It now remains for me briefly to inform you of the subsequent changes which have been induced by *European* Policy, Industry, and Luxury. Religion I omit, because that seems to have had no influence in these alterations. It is my intention, however, to confine my information, relative to these particulars, solely

solely to that part of *Guiana*, which is inhabited by the subjects of the United Provinces; my knowledge of the other *European Colonies* being too imperfect to merit a communication.

The most ancient and considerable of all the *Dutch Colonies* in *Guiana*, is *Surinam*; but as that River, with its Settlements, which were made first by the Subjects of *England*, are already sufficiently known in *Europe*, I shall omit a description of them.

Next in the order of situation is the Colony of *Berbice*, situated on the shores of the River of that name, about twenty-five leagues N. W. by W. $\frac{1}{2}$ N. distant from *Surinam*, running from North to South, and discharging itself into the *Atlantic Ocean*. The Coast on each side of the River forms a Bay at its entrance, which is near a mile in width,

width, having a small Island in the middle, known by the name of *Crab Island*. Opposite this Island, on the eastern shore, is a small Post, with several pieces of cannon, and some soldiers; but the channel on the other side, which is navigable for vessels of any burthen, is undefended, and covered by the Island from the guns on the opposite shore. Without the entrance of this River is a Bar, which, at high tide, has seldom more than sixteen feet of water; but within, the water is of sufficient depth, and the river is navigable, for ships of burthen, two hundred miles from its mouth.

The Plantations are situated on each side of the River, and extend near three hundred miles from its entrance, Fort *Nassau*, which is the Seat of Government, and contiguous to which are the Public Offices, Churches, and
Houses

Houses of the Civil and Military Officers, being situated at one hundred miles from the mouth of the River ; the *Dutch* having here, as in all their Colonies, neglected the lower and more fertile land, near the sea-coast, for that which is more elevated, in the interior part of the country. At present, however, they are endeavouring to repair their error, and the Seat of Government is soon to be removed to a point of land on the eastern shore of *Berbice*, about a mile from its entrance, which is formed between *Berbice* and the River *Conya*, which there discharges itself into the former.

Conya is a narrow, but deep river, running from south to north, but diverging somewhat easterly from *Berbice*. There are several Plantations on the sides of this river, which makes a part of the Colony of *Berbice*, which is at present

present under the government of his Excellency *John Heyliger*, Esquire, who is stiled Governor General.

This, like all the *Dutch* Colonies in the *West Indies*, is under the jurisdiction of the *Dutch West India* Company, and the lands are granted *gratis*, by the Governor and Court of Policy, to petitioners, upon conditional terms of settlement; and if these are not complied with, the land again reverts to the donors, and is granted to other petitioners. The inhabitants of this Colony, however, as well as those of *Surinam*, are restricted from transmitting the produce of their Plantations (which is chiefly Sugar, Coffee, Cotton, and Cacao,) to any Port which is not within the Province of *Holland*; as those of *Demerary* and *Essequibo* are obliged to export theirs to the Province of *Zealand*. These are commercial regulations,

tions, which have been thought to be for the mutual interest of the Company and Inhabitants.

In the year 1763 an insurrection happened among the Slaves of this Colony, who rebelled to the amount of several thousands, and massacred a considerable number of the White Inhabitants, while the rest fled to Fort *Nassau*, where, fearing their communication with the sea-coast might be obstructed, the then Governor, by the advice of his Council, precipitately blew up the Fort, and retired, with the White Inhabitants, on board several merchant ships in the River, and sailed to its entrance, there to wait for assistance from abroad. This retreat left the Rebels the undisturbed possession of the whole Colony, and threw the inhabitants of the neighbouring Colonies, particularly of *Demerary* and *Essequibo*, into the utmost conster-

consternation, as they were the most contiguous to *Berbice*, and apprehended a visit from the Rebels, which must have been attended with the most unhappy consequences, as their own slaves were at least five times more numerous than the White Inhabitants, and betrayed so eager a disposition for revolting, that it was feared they would not have patience to wait for assistance from their brethren in *Berbice*.

In this critical situation, however, they experienced the advantage of their connection with the subjects of *Great Britain*, as at this time a ship of war, belonging to *Gedney Clarke*, Esq; Collector of his Majesty's Customs at *Barbadoes*, which had been put into commission by Admiral *Douglas*, and was commanded by a Lieutenant of the *British* Navy, arrived with a Company of Marines, and another of Soldiers, raised

at the expence of Mr. *Clarke*, who was proprietor of several plantations in *Demerary*, as were several other Gentlemen in *Barbadoes*. This armament effectually frustrated the rebellious designs of the Slaves in *Demerary*, and the civil dissentions among the Rebels of *Berbice* diverted them from their intended visit. In the interim, however, the Governor of *Berbice* received a body of Soldiers from *Surinam*, and several armed vessels from the Islands of *Curaçoa* and *St. Eustatia*, with which he sailed up the River, and took possession of the *Dauger-head*, a large Plantation belonging to the *West India* Company, where he maintained himself till the arrival of an armament from *Holland*, when the Rebels were soon driven from the woods, from whence hunger, and the arrows of the *Indians*, obliged them to return, and seek an asylum in their former slavery. Several hundred of the
chief

chief promoters of this insurrection were however burnt, or broke on the wheel, with all the various species of cruelty for which the *Dutch* have been long notorious. Before this, however, several hundreds of the *Carribbee Indians* were, by the Governor of *Essequibo* and *Demerary*, engaged to take up arms against the Rebels, whom they not a little harrassed, by concealing themselves in the woods by day, and setting fire to their houses in the night, by shooting arrows fired at the point among the Troolies, with which they were thatched, and then killing the Negroes as they fled out in confusion.

About fifteen leagues North West from *Berbice* is the River *Demerary*, near three quarters of a mile in width at its entrance, which is in 6 deg. 46 m. North Latitude. On the east side is a sandy shoal, extending a little distance

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from the shore; to avoid this, nothing is required but to enter the River near its middle, with its course in full view, when the water will be found deeper, and its entrance easier, than that of *Berbice* or *Essequibo*. A little within the mouth of the River, on the east shore, is a small Post, with several patereroes, which are very insufficient for defending the mouth of the River against a vessel of any force, though this is the only fortification in this part of the Colony. About eight leagues from thence are three Islands, at no great distance from each other. On that which is in the middle is the residence of the Commandant, and there the Courts of Judicature are held, and the Company's Troops are stationed. This River is navigable for vessels of great burthen one hundred miles from its mouth, and is settled near one hundred miles farther. Two hundred miles from
the

the entrance of this River are several Cataracts, from which the water falls by a long, but easy descent. Some distance above these the River divides into two branches, which diverge from each other about eight points, the one running S. W. and the other S. E. But their source has never been discovered by any *European*.

One league West from *Demerary* is the Great River *Essequibo*, which, at its entrance, is nine miles from shore to shore. In its mouth are three Islands, called the *Lagueon Islands*, two of which extend some distance without the main land. Within these are the *Fortune Islands*, and within them a succession of other Islands, which is continued the distance of twelve or fourteen leagues from the River's mouth, which, on the eastern shore is defended by a Post similar to that in *Demerary*, though the

A a 4 western

western channel is intirely defenceless. Fort *Zealand* is situated on an Island known by the name of the *Fort Island*, lying about ten leagues above the entrance of the River. This Fort mounts about forty pieces of cannon, and on this Island is the usual residence of the Governor, and other Officers of Government, as well as of some of the Planters, &c. On this, and all the other Islands, as well as on each side of the River, for a great distance, are Plantations, producing Sugar, Coffee, and Cotton chiefly.

The River *Essequibo* receives a great number of creeks and rivers on each side ; but the principal stream has its source more than three hundred miles from the sea-coast, diverging westerly from *Demerary*, whose course from the entrance is nearly South to the place where it divides into two branches. Be-
sides

sides these, there are the Rivers *Pomeroon*, *Currantine*, *Merriwina*, and a great number of small rivers and creeks discharging themselves into the North Sea ; but as they are all unsettled, I shall not descend to a description of them. All these, as well as several of those Rivers which are settled, are unknown to *English* Geographers, and not to be discovered in any Charts of that country that I have ever seen.

Essequibo and *Demerary*, on account of their proximity, are comprized in one Colony, which bears the name of both Rivers, and is under the government of his Excellency *Laurence Storm Van Gravesande*. *Essequibo* is the most ancient, having been settled near sixty years ; though no great advances were made in agriculture till lately. *Demerary*, which has been settled but little more than twenty years, at present promises

mises fair to become a most flourishing Colony, with proper encouragement; though the *Dutch* do not bestow all the attention on these colonies which they deserve, and in some measure neglect the *West* for the *East Indies*.

The Plantations of these Colonies are situated in single tiers on each side of the River, extending seven hundred and fifty rods in depth from the River, but are of different extent in front, according to the productions to which they are appropriated; those for Sugar extending usually either a thousand or fifteen hundred rods in front of the River; those for Coffee or Cotton seldom exceed five hundred. Between each plantation the Company has reserved twenty-four feet of ground, on which roads are to be made, if ever a second row of plantations should be formed behind the first. Sugar plantations are
deemed

deemed the most profitable, and are the objects to which all aspire. Those, however, whose fortunes are unequal to so expensive an undertaking, content themselves with Coffee or Cotton Plantations, till they have thereby sufficiently improved their stock for undertaking a greater object.

The Sugar-mills of these Colonies are either turned by mules, obtained chiefly from the *Spaniards* of *Oronoque*, by illicit traffic, or by wind, or water. The dwelling-houses are usually surrounded by piazzas, which in this climate are particularly convenient. The plantations near the sea-coast are at present esteemed much the most valuable. They indeed require to be not only surrounded with dykes, for excluding the water which overflows the adjacent woods, and to defend them from the inundation of the tides, which
rise

rise to a great height, especially near the Vernal and Autumnal Equinoxes ; but also to be inclosed and intersected by trenches with gates emptying into the River, which at low tide are opened for discharging the water which may have fallen on the plantation by rain ; all which requires no small labour : But it is amply repaid by other attendant advantages. The trenches serve for canals, by which the canes are, with great facility, transported to the mills ; the fertility of the soil is inexhaustible ; and the land, being covered with but little else than Troolies and Manicoles, is much easier cleared than in the more elevated parts of the River, where indeed dykes and trenches are unnecessary ; but the fertility of the soil is much less durable, and the lands are covered with large timber, which, in hardness, solidity, and weight, is but little inferior to iron : This, however,
 though

though it augments the labour in clearing lands, is far from being the least advantageous production of this country.

Many of the largest and most flourishing Plantations, both in *Essequibo* and *Demerary*, but especially in the latter, are the property of *British* subjects, who have been induced to form settlements in this Country, by the peculiar advantages with which it is endowed; and though the *Dutch* in *Surinam*, and all their other Colonies, are ignorant of the art of converting Melasses to Rum, with advantage, yet in this Colony they have been, by the *English* inhabitants, perfectly instructed in the arts of Distillation, and produce Rum, which is not inferior, in any respect, even to that of *Jamaica*. The White Inhabitants of this Colony are *Dutch*, *English*, *French*, *Swiss*, and *Germans*, but chiefly the
two

two former. Many of these are unfortunate persons, whom the unavoidable accidents of life, or frowns of fortune, have induced to seek an asylum in distant countries, where their industry is often so amply rewarded, that they are enabled to return with opulence and credit, and bless those accidents which reduced them to the necessity of abandoning their homes, and which they once esteemed the greatest misfortune.

Agriculture, and all other labour, in these Colonies, is almost wholly performed by Negroes (who are sufficiently known in *England*,) as the White Inhabitants undertake no laborious employment; and even the mechanics do but little more than oversee and direct the Slaves, which are at least five times more numerous than the Whites, and are therefore kept at a submissive and humble distance by severity of discipline,

pline, which not only contributes to the safety of the White Inhabitants, but even to the happiness of the Slaves ; the impossibility of attaining, is ever found to destroy the desire of enjoyment ; and rigid treatment, by annihilating every hope of liberty, renders them content with the enjoyment of slavery. The late insurrection of the Slaves in *Berbice*, who of all others were the most favoured, affords a recent example of the danger of too much indulgence to Slaves, by which they are excited to attempt the perfect recovery of liberty. In this state there is no medium ; either the minds of slaves must be depressed by abject slavery, or the lives of their masters are in imminent danger. For this reason they have been oppressed by many humiliating penalties and distinctions. Their evidence, relative to a White Person, is of no validity ; an attempt to strike
a White

a White Inhabitant is punished with death; and their masters, or overseers, have not only the power of inflicting corporal punishment, but are in some measure allowed to exercise a right over their lives, since the putting a Negro to death, is attended only with a pecuniary punishment. In this situation they are subjected to many complicated species of misery, exposed to the tyranny of the imperious, and lust of the libidinous, and to an incessant toil, which will have no period but with their lives. This treatment has the appearance of cruelty, and cannot be reconciled to the principles of justice and equity; many things, however, which are repugnant to humanity, may be excused, on account of their necessity, for self-preservation.

The expence of maintaining the Slaves, in this climate, is very trifling.

The

The first year that a slave is purchased, he is supplied with food by his master, and is assigned a piece of ground, which on Sundays he clears from the wood, and plants with yams, plantins, edda's, cassava, ocro's, &c. but especially the former, which produce ten thousand pounds per acre. When the year is expired he recurs to his planting-ground for his future provision, which he is ever after to keep supplied with a sufficient stock for his sustenance, for which he is allowed every Sunday only; receiving, however, from his master a weekly allowance of dried fish, to the amount of a pound and an half, which is all that his master contributes towards his food. The females receive the same treatment, and the drink of both is nothing but water; yet from this water, and these farinaceous and esculent vegetables, with a morsel of dried fish, these people derive

B b suffi-

sufficient nutriment to sustain the hardest labour in the most enervating climate.

The cloathing of the Negroes (the household slaves excepted) is scarce sufficient to answer the demands of modesty. Several modern Compilers of the History of our *West India* settlements have enumerated stockings and shoes among the articles of cloathing for the Negroes, though nothing could more certainly betray their ignorance of this subject, since a slave in stockings and shoes, in these countries, would be as uncommon a spectacle, as a Negro instructed in the principles of Christianity; and if any of them have either shirts, breeches, or petticoats, they are the produce of their own private industry, as their masters furnish only a piece of coarse blue, or brown linen, which is applied to the middle
in

in both sexes, and a blanket, with which the slave covers himself at night, sleeping on boards only.

In these, as in all other *West India* Colonies, the slaves diminish in number, unless recruited by successive supplies from *Africa*. This decrease has been attributed to various causes, but most commonly to hard labour and oppression, though with very little appearance of reason, since they are much more robust, healthy, and vigorous than their masters. They are, indeed, spurred to industry by the whip of correction, which is ever at their heels, and not sparingly exercised; but coarse food, with hard labour, are ever accompanied with the blessings of increased health and vigour, which the pampered effeminate sons of luxury may justly envy, but can never attain; and the true cause of their want of increase

results from the intercourse of the Whites with the young wenches, who derive no inconsiderable emolument therefrom ; and as child-bearing would put an end to this commerce, they sollicitously use every precaution to avoid conception ; and if these prove ineffectual, they ever procure repeated abortions, which incapacitate them from child-bearing in a more advanced age, when they are abandoned by the Whites. For effecting this, they have various means ; but the most artful prepare themselves by a diet on Ocro's, by which they lubricate the uterine passages, and afterwards expel their contents usually by the Sensitive Plant ; though in *Barbadoes*, a vegetable, called by the name of Gulley-root, is commonly used for this purpose. This unnatural practise is very frequent, and of the highest detriment to the Planters, whose opulence must otherwise be immense,

menſe, in a country where their ſlaves are fed with little or no expence to their maſters, and where winter neither interrupts their labour, nor renders cloathing neceſſary. To avoid the diſadvantages of this practice, many of the Planters of this Colony are endeavouring to encourage the wenches to child-bearing, by particular rewards and immunities, which, in ſeveral inſtances, have proved ſucceſſful. That this is the true cauſe of their decreaſe, is farther evident, from obſerving the ſituation of *Virginia* and *Maryland*, where the Slaves increaſe, without any addition by importation, becauſe this pernicious copulation is there deteſted, as infamous and unnatural.

The Inhabitants derive no ſmall aſſiſtance from the *Indians*, particularly the *Arrowauks*, ſome of whom reſide on almoſt every plantation, and are em-

ployed in various services, but especially in hunting and fishing, which, being their natural employment, they are able to exercise it with uncommon art and success, and may be hired with a few baubles for several months. These *Indians*, however, are debauched by luxury and intemperance, and their manners but ill agree with those of the *Indians* who have preserved their natural innocence and simplicity; and they are encouraged in their propensity to intemperance by the Whites, who freely supply them with Rum, thereby to attach them more firmly to their service; a practice, which considerably impairs their health, and diminishes their numbers. Effects similar to these have happened in every part of *America*, where the *Aborigines* have maintained an intimate intercourse with the *Europeans*, from the unnatural union of our vices with the manners of the *Indians*; and
it

it is a piece of refined and useful policy in the *Jesuit* Missionaries of *Paraguay*, to exclude their New Converts from all intercourse with Foreigners, not only to answer the purposes of that politic Society, but also to preserve them in a happy ignorance of our vices, which alone could secure them from being corrupted by their example. “ Si velis
 “ vitiis exui, longe a vitiorum exemplis
 “ recedendum est. . . . Nullo ad au-
 “ res nostras vox impune perferatur*.”
 The cause of these effects is obvious; we contaminate them with our Vices, but withhold the Antidotes of Religion, Morality, and Literature.

The *Dutch*, in these Colonies, encourage intermarriages with the *Indian* women; and several of the most considerable families, in rank and fortune, in *Essequibo*, derive their origin from

* *Sen. Epist.* xxviii. & civ.

these alliances ; by which the *Dutch* have acquired an ascendancy and influence over the *Indians*, which is of the utmost use and importance ; and the Governor not only reserves to himself the decision of their differences, but by his order prohibits the several contiguous Tribes from committing hostilities on each other : And though he has no other means for enforcing these orders, except a few despicable soldiers, in the service of the Company, they yet receive an humble and implicit obedience.

As there are no public roads in this, or the neighbouring Colonies, for any considerable distance, the only method of travelling is by water, in Yatches, with convenient tents, elegantly ornamented, and fix, eight, or ten oars, rowed by *Negroes*, or *Indians*, and that always with the current of the tide,
which

which ebbs and flows with irresistible rapidity, in all these rivers, near two hundred miles from their entrance, by which you may conceive how level and even the country must be. When the current of the tide turns, the traveller stops, not at an inn, or tavern, for none are to be found, but at whatever plantation he chuses, where, though an intire stranger, he is made welcome to every thing it can afford ; the hospitality of this Colony not permitting money to be any where received for victuals or drink ; and a stranger, on his arrival here, is every where welcome to board and lodging for months or years.

The Lands of this Colony, like those of *Berbice*, are granted *gratis*, upon conditional terms of settlement ; and the Governor is appointed by the Company, with the approbation of the States General,

neral, who, with his Council, which are chosen by the Burghers, or their substitutes, compose the Legislative Authority, and impose such taxes as are requisite for the support of Government. They likewise form the Supreme Court of Judicature in Criminal and Civil Causes, from which, in the latter, Appeals are allowed to *Holland* for sums exceeding twelve hundred Guilders. This Court examines the evidences, and from their testimonies determines the cause, without hearing Counsel on either side. For this conduct they have several reasons. Multiplicity of law-suits are universally allowed to be particularly detrimental to new countries. Lawyers, they think, not only tend to promote them, but also to protract, embarrass, and perplex judicial proceedings. How far these conclusions are just, I will not determine; Right and Wrong, Justice and Injustice, are sometimes so obscure, that

that the assistance of Council may be useful; but where the Members of a Court of Judicature, as in the present case, are but little versed in the study of Law, instead of acquiring useful information, they would be in danger of being misled by the subtilties of pleadings, and the arts of litigation. Besides, this would naturally enhance the expence of judicial determinations; to prevent which, the Government is here particularly sollicitous, to their honour I speak it, as in some countries the necessary expences in this particular have been so enormously augmented, not only by multiplicity of fees, but by stamps, and other duties, on the several instruments required, that the means of obtaining a judicial decision are beyond the reach, not only of the poor, but even of people in moderate circumstances, who, in effect, suffer an absolute deprivation of justice; whereas in this Colony,

lony, the whole expence of a Law-suit is but a single shilling for a Summons. I say a Summons, because the body of no inhabitant can be arrested except for a criminal offence: But the inconveniences which might result from this useful regulation are prevented, by a Law, which prohibits all inhabitants from leaving the Colony without a passport, which can only be obtained, either by previously notifying the intention of departure, or by providing security for the discharge of any remaining debts.

The Company has reserved to itself the right of regulating our commerce for the mutual advantage of the Parent-country and Colonies; but in exercising this right they have been particularly attentive to the interest of the latter, as they are sensible that colonization can only be promoted by indulgence; and though we are obliged to transmit our
Sugar,

Sugar, Coffee, Cotton, Cocao, &c. to the Province of *Zealand*, yet we have liberty to export Rum, Melasses, Timber, &c. to foreign countries, and to import from them all commodities which we want, without distinction, and uncharged with duties.

I think I have now given you an account of the most material particulars relative to the State and Government of these Colonies; one thing yet remains to complete my undertaking, which is an Account of the Diseases of *Guiana*. These are as numerous as in other countries, where they have been augmented by cookery, with its stimulating provocative arts, exciting inordinate appetites, by multiplying the variety of dishes, which, blended in the stomach, compose such an incongruous medley, that the digestive organs cannot possibly assimilate the pernicious mass to
wholsome

wholesome chyle. Nor has intemperate luxury been confined to this single innovation: Water, the natural drink of mankind, as of all other animals, is now contaminated by the mixture of pernicious spirits, which have poisoned one of the principal blessings of life. From this source are derived those tribes of diseases which oppress humanity, and which are so far factitious, that they can hardly be deemed the proper objects of Natural History. There are some disorders, however, which are peculiar to Tropical Countries, and which depend rather on the variations of climate than the innovations of luxury; but these are the peculiar objects of medical researches, and therefore I shall not descend to minute particulars on this subject.

Among superficial, or cutaneous disorders, the most troublesome is an *incurable*

rable Leprosy, which indiscriminately attacks all the different tribes of people inhabiting those parts of *America* which are situated between the Tropics. The distinguishing characteristic appearances of this disease are, a swelling on the tips of the ears; an eruption of red tubercles, or bumps, of different sizes, on the face, neck, limbs, &c. which, after some time, frequently assume a livid, or copper colour, and become schirrous, often ulcerating, and discharging a fetid ichor: the features of the face swell and enlarge, the eyebrows are inflated, and their hair, together with the beard, fall off; the *alæ nasi* are tumified and scabrous, the nostrils patulous, and sometimes ulcerated, as is also the *septum nasi*, which is then depressed, together with the nose. The lips also swell, the voice becomes hoarse, and the nails rugose and scabrous. In process of time the disease corrodes the
fingers

fingers and toes with a dry, sordid, scabby, and gangrenous ulcer, from whence they putrefy, and separate, joint after joint. The legs are commonly swelled, scaly, and indurated, and often covered with tubercles. The skin on the face assumes a shining appearance, and the breath becomes offensive. The disease attacks differently, but often suddenly, especially when the *fomes morbi*, or latent seeds of the disorder, are prematurely expelled by a *crapula*, or surfeit, gross food, or inordinate passions. It is universally deemed infectious, and Lepers are separated from the society of mankind. The Island of *Desirade* is appropriated for the reception of all those unhappy persons who are attacked by this disorder in the *French Colonies in America*. In this country they are usually sent into the Woods, where they build houses and plant fields for their own use, and thus wear out a life

life of solitude. I have, however, known leprous slaves, who have privately cohabited with their former wives a long time, during the course of the disorder, without communicating the infection. Lepers are notorious for their salacity and longevity. The disease is always incurable.

The Yaws are spongy, fungous, yellowish, circular protuberances, not rising very high, but of different magnitudes, usually between one and three inches in circumference. These infest the whole surface of the body, and are commonly so contiguous, that the end of the finger cannot be inserted between them; and a small quantity of yellowish pus is usually seen adhering to their surface, which is commonly covered with flies, through the indolence of the Negroes. This is a most troublesome, disagreeable disorder, though it is seldom fatal. Almost

all the Negroes, once only in their lives, are infected with it, and sometimes the Whites also, on whom its effects are much more violent. It is usually believed that this disorder is communicated by the flies, who have been feasting on a diseased object, to those persons who have sores, or scratches, which are uncovered ; and from many observations, I think this is not improbable, as none ever receive this disorder, whose skins are whole ; for which reason the Whites are rarely infected ; but the backs of the Negroes being often raw by whipping, and suffered to remain naked, they scarce ever escape it. It is usual to promote the eruption of the Yaws, as soon as they appear, by giving sulphur internally for some days. After several weeks, when the eruption is not only complete, but the Yaws suppurate, they may be cured by a salivation with mercury ; but the most usual method is, to com-

combine this medicine with camphor, and give it in small quantities, so as to excite no sensible evacuation, and to direct its effects towards the external superficies, by sudorifics : And perhaps there is no good effect which can be procured by a salivation, which may not be more advantageously obtained by this method. By this treatment, the protuberances subside, and the scales fall off, leaving the skin smooth and even. This effect may indeed be obtained by mercury, in any stage of the disease ; but if it is exhibited too early, the disorder will again return in some months. The infectious matter, deposited on the soles of the feet, not being discharged, produces subcutaneous sores, which are called Tubboes, and are often troublesome for months, and even years. These are usually cauterized, or the skin is first scarified, and the hot juice of roasted limes is applied.

Guinea-Worms are here sometimes extracted from the *Negroes* lately imported from *Africa*, where they are generated in the fresh stagnant water. They are of a whitish colour, several feet in length, and in thickness equal to the large string of a violin. They inhabit the cellular membrane, and move through its cavities over the whole surface of the body. When the Worm collects itself in a particular part, a swelling arises, which being suppurated, the head of the Worm appears, which is seized, and wound round a stick, as far as it can be extracted without breaking. When this happens, by too eager endeavours to precipitate its extraction, the abscess must be instantly dilated, and attempts made to recover some part of the broken Worm. If this is not done, not only the loss of a limb, but even of life, frequently ensues, of which I have seen several instances. But the
 most

most successful method is, to apply a cataplasm of onions and bread, boiled with milk, to the swelling, and when the Worm appears, to secure its head to a piece of cotton, without attempting its extraction, and to give internally a mixture from the powder of black pepper, bruised garlic, and flour of sulphur, of each an ounce, infused in a quart of rum, of which half a gill is to be drank morning and evening; by which, in a day or two, the Worm will be found coiled up under the poultice.

There is likewise a Worm resembling a bean, but more slender, and pointed, which is bred in the muddy stagnant waters in the woods, and inserts itself into the flesh, chiefly about the ankles, and when extracted leaves a sinuous callous ulcer, which is difficultly cured.

The Inhabitants of this, and the neighbouring *Dutch* Colonies, are perhaps of all others most afflicted with disorders arising from Worms in the stomach and intestines, particularly the Slaves, with whom they abound in such numbers as to an *European* would appear incredible. The cause of this uncommon production is by some attributed to verminous animalculæ generated in the surrounding waters of the low country, which, during the dry season, stagnate, corrupt, and putrefy ; though I think it may be more justly assigned to the crude indigestible diet, with which the Slaves are fed, which consists chiefly of Plantains and Bananoes, but especially the former, which, when ripe, are usually eaten raw, especially by the children, by whom they can be but ill digested. But from whatever cause they are produced, their number is so great, that the usual remedies are
 very

very insufficient for their destruction; for which reason the Planters in general have recourse to the Cow-itch for that purpose. From whence its use was first suggested, I am uncertain; but its efficacy is indisputable. The part used is the setaceous hairy substance growing on the outside of the pod, which is scraped off and mixed with the common syrup, or melasses, to the consistence of a thin electuary, of which a tea spoonful to a child of two or three years old, and double the quantity to an adult, is given in the morning fasting, and repeated the two succeeding mornings; after which a dose of Rhubarb is usually subjoined. This is the Empirical Practice of the Planters, who usually, once in three or four months, exhibit the Cow-itch in this manner to their Slaves in general, but especially to all the children without distinction; and in this manner I have seen it given to hundreds,

dreds, from one year old upwards, with the most happy success; the patients, after the second dose, usually discharging an incredible number of Worms, even to the amount of more than twenty at a time, so that the stools consisted of little else than these animals. But though these were indisputable proofs of its efficacy, I was far from being convinced of its safety. I observed, that the substance given consisted of an assemblage of spiculæ, exquisitely fine, and so acutely pointed, that when applied to the skin they excited an intolerable itching, and even inflammation, from whence I apprehended dangerous consequences from their contact with the coats of the stomach and intestines. Indeed, when mixed into an electuary, in the manner in which they are given, their elasticity is so impaired, that they do not produce the same sensible irritation; but yet I could conceive no other
quality

quality on which their efficacy depended, especially after I had prepared both a tincture and decoction from the Cow-itch, and given them to Worm-patients without any sensible advantage. Influenced by these suggestions, I particularly examined the state and condition of all such patients as I knew had taken the Cow-itch; and yet can, with the greatest truth, declare, that, tho' prejudiced to its disadvantage, I was never able, either by my own observations, or a diligent enquiry, to discover a single instance of any ill consequence resulting from its use; which has been so extensive, that several thousands must have taken it; and as no ill effects have been observed, I think not only its efficacy, but safety, are sufficiently evinced, to entitle it to general use; especially when we reflect on the uncertainty, and even danger, which attends other Vermifuges. It is to be observed,

that

that this remedy is particularly designed against the long round Worm; whether it is equally deleterious to the *Ascarides*, or whether it has ever been used against them, I am uncertain.

The *Colica Pictonum*, or *West India Dry Gripes*, proceed from a painful spasmodic constriction of the intestines, inducing an obstinate costiveness, which continues till the patient is either relieved, or the disease translated on the extremities. The causes to which this disorder is ascribed, are various, and unsatisfactory *. Some years since, Phy-

* The ingenious Dr. *Baker* has lately published an Inquiry concerning the Cause of the Endemial Colic in *Devonshire*; a Disease which has a particular affinity to the *West India Dry Gripes*; and the Doctor, in that Work, renders it more than probable, that this Disease derives its origin from Salt of Lead received into the body.

This

ficians observing, that when the coſtiveness was overcome, the patient was ſoon cured, from thence directed all their endeavours towards relieving this ſymptom, while the cauſe of the diſeaſe was wholly neglected. For this reaſon, draſtic purges were inceſſantly adminiſtered; and Anodynes, though ſtrongly indicated, were prohibited, leſt they ſhould impede the operation of the Cathartics. Later Phyſicians, however, being better inſtructed in the cauſe of the diſeaſe, copiouſly exhibit Anodynes and Antiſpaſmodics, which, with the *Ol. Ricini*, or Caſtor oil, taken by the mouth, and injected by

This is, indeed, a nervous poiſon, known to produce ſymptoms ſimilar to thoſe which characterize the *Weſt India* Dry Gripes, and which, in every part of the *Weſt Indies*, is received internally, either by the drinkers of Rum, or of Red Wines from *France*.

the

the *rectum*, thereby lubricating and relaxing the intestines, soon effect a cure.

Intermitting Fevers are here endemic, especially near the Sea, where the air is extremely humid, and the paroxysms terminate by profuse debilitating sweats, occasioned by the excessive relaxation of the solids; and are often attended with symptoms indicating a putrid disposition of the fluids. The efficacy of the Bark is particularly promoted in these countries, by the addition of Aromatics, especially the *Virginia* Snake-root, and by the copious use of Pepper with the food, which is found to be the surest preservative against the return of this disorder: Acids are likewise useful, and Alkalies the reverse; several Practitioners, to my knowledge, having, on the authority

rity of *Boerhaave**, given *Sal Absinth.* with the worst effects.

The Bilious Putrid Fever of the *West Indies*, is sometimes observed in these Colonies. It first appears with the usual febrile symptoms, but is soon distinguished by the yellow cast of the eyes and countenance, and by bilious vomitings, attended with great weakness and dejection. This disease soon proves fatal, unless the patient is timely succoured by the Bark, Snake-root, and Vegetable Acids, which of all others are the most efficacious remedies.

The Bites of venomous Snakes are no where more frequent, or more fatal, than in these Colonies. To these accidents the Slaves are particularly exposed,

* Vide *Aphorismi de cognoscend. et curand. morbis.*

by constantly labouring, barefooted, in places frequented by these reptiles; many of which have happened within the sphere of my practice, which, in every instance of this kind, has hitherto been attended with a happy success; though my sollicitude for the preservation of life, and fear of trusting solely to any single medicine, has led me into the use of so many remedies, that it is impossible to ascribe success to any one in particular, with certainty. This is here inevitable, on account of the great variety of Snakes, and our ignorance of the effects of their poison, which are extremely various. Sometimes a fatal dissolution of the fluids ensues, but most frequently a painful tumefaction and inflammation of the wounded part, with a fever, &c. is the consequence. In some instances the tumefaction subsides, without any apparent discharge; in others it is converted into an abscess, which

which terminates in a copious flux of ichor, or pus. A cataplasin from the pulp of lemons, or limes, with sea salt, applied to the wounded part, is the general remedy for venomous Bites in these Colonies; and I have often used it with success, after scarifying the wound: At other times I have successfully substituted a cataplasin from the Meal of the Seeds of the Vegetable Musk, or wild Ocro plant, with Olive Oil; but to these I have usually adjoined oily embrocations of the adjacent parts, with the internal use of the Treacle of *Andromachus*, Decoctions of *Seneca* and *Virginia* Snake-root, or an Emulsion of the Seeds of the Musk plant. These have hitherto been successful, though there are undoubtedly Poisons against which no art can avail, such as that of the small *Labarra*, above described.

These

These are the most material particulars which have occurred to my observation, during my residence in *Guiana*. Happy shall I think myself if they afford you either instruction or entertainment. My Observations and Enquiries might, indeed, have been much more extensive, had I not been influenced by the indolent examples with which I was every where surrounded.

In taking a retrospect of Animated Nature, I cannot but admire the Wisdom and Goodness of that Power, who has so exquisitely adapted the Organs and Dispositions of all animal Beings to that life in which each is capable of enjoying the greatest portion of happiness, and who has caused each to be actuated with principles the least exposed to infringe the Order and Harmony of our material System. Voracious

cious animals, formed for a life of hostile rapacity, and who subsist by carnage and destruction, all, except Man, from instinct direct their hostility to objects endowed with the means of resistance or escape ; while inferior animals, especially Insects, who would otherwise become the prey of every invader, derive security from their minuteness. The Tiger wantonly destroys the objects of its rapacity for the sake of destruction ; but Man, tho' he indiscriminately attacks both the weak and strong, yet kills only in proportion to his wants, and even in destruction uses œconomy ; nay, in a state of civilization he toils for, and feeds, the victims destined to his future sustenance.

The Hog that plows not, nor obeys the call,
Lives on the labours of the Lord of all.

POPE.

This, however, happens only in a state where cultivated reason has inspired a

D d concern

concern for the wants of futurity, and is incompatible with that improvidence by which uncivilized nations are peculiarly characterized. — But I am detaining you with Reflections, which your own Reason will more advantageously suggest, and shall therefore conclude with assuring you, that I shall improve every occasion of testifying the affectionate devotion with which I have the happiness to be,

Dear BROTHER,

Your, &c.

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